

**9.4.4. DRAFT Corporate Card Policy MSC28E for Public Exhibition**

Attachments:	1. DRAFT Corporate Card Policy MSC28E [9.4.4.1 - 7 pages] 2. OLG Guideline on the use and management of credit cards 20210929 [9.4.4.2 - 22 pages]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Josh Hogan (Finance Manager), Chloe Wuiske (Business Improvement Officer), Madeleine St John (Business Improvement Officer)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves. 6.2.5 - Implement a comprehensive and targeted business improvement program. 6.2.1.1 - Provide transparent reporting to the community about Council's finances. 6.2.5.2 - Review the policy management framework.

PURPOSE

The purpose of this report is to present the *DRAFT Corporate Card Policy MSC28E* to Council for notice of intention to adopt after public exhibition.

OFFICER'S RECOMMENDATION

1. Council endorses the *DRAFT Corporate Card Policy* for placement on public exhibition via Council's website for a period of 28 days.
2. A further report be submitted to Council for consideration once the exhibition period has been completed.

Moved: _____ **Seconded:** _____

BACKGROUND

The *DRAFT Corporate Card Policy* (the Policy) has been developed to ensure that effective controls are in place with respect to the use of Corporate Cards and to align with the Office of Local Government's *Guideline on the Use and Management of Credit Cards* (Attachment 2).

The Guideline suggests a minimum framework for the use and management of credit cards to ensure that risks associated with their use and management are minimised.



CONSULTATION

MANEX

Finance Manager

Finance Officers

Business Improvement Officers

REPORT

The *DRAFT Corporate Card Policy* (Attachment 1) is a new policy that aims to reduce the risk of fraud and misuse of corporate cards and was developed to align with the NSW Office of Local Government's *Guideline on the Use and Management of Credit Cards*.

OPTIONS

Council may:

1. Resolve to endorse the *DRAFT Corporate Card Policy* for Public Exhibition via Council's website for a period of 28 days. This is the preferred option to ensure alignment with the NSW Office of Local Government's *Guideline on the Use and Management of Credit Cards*.
2. Request amendments to the *DRAFT Corporate Card Policy* and a further report be submitted to Council for consideration.

CONCLUSION

It is recommended that Council endorses the *DRAFT Corporate Card Policy* for Public Exhibition as per the recommendations to ensure alignment with NSW Office of Local Government Guidelines.

SOCIAL IMPLICATIONS

Nil known.

FINANCIAL IMPLICATIONS

No financial implications associated with placing the draft Policy on public exhibition.

POLICY IMPLICATIONS

This policy was developed to align with the NSW Office of Local Government's *Guideline on the use and management of credit cards 2021*.

STATUTORY IMPLICATIONS

Local Government Act 1993;

Local Government (General) Regulations 2021;

Independent Commission against Corruption Act 1988;

Public Interest Disclosures Act 1994;

Crimes Act 1900;

A New Tax System (Goods and Services Tax) Act 1999;

NSW State Records Act 1998;

Government Information (Public Access) Act 2009; and



Privacy and Personal Information Protection Act 1998.

LEGAL IMPLICATIONS

The Local Government Act 1993 (section 8B) and the *Local Government (General) Regulation 2021* (clause 209) require all councils to establish effective internal control mechanisms for financial management, expenditure and accounting records.

OPERATIONAL PLAN IMPLICATIONS

6.2.5.2 - Review the policy management framework.

RISK MANAGEMENT IMPLICATIONS

The Policy minimises the risk of fraud and misuse of the corporate card.

WASTE MANAGEMENT IMPLICATIONS

Nil known

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Public exhibition via Council's website will provide the Community with an opportunity to make submissions.



**muswellbrook
shire council**

DRAFT Corporate Card Policy

MSC28E

Authorisation Details

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Date:		Minute No:	
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1. Policy Objective

The aim of this Policy is to ensure that effective controls are in place with respect to the use of Corporate Cards and to align with the Office of Local Government's Guideline on the Use and Management of Credit Cards. *The Local Government Act 1993* (section 8B) and the *Local Government (General) Regulation 2021* (clause 209) require all councils to establish effective internal control mechanisms for financial management, expenditure and accounting records.

2. Risks being addressed

This policy aims to reduce the risk of fraud and misuse of corporate cards.

3. Scope

Muswellbrook Shire Council's corporate cards come in various forms such as corporate credit cards, the virtual credit card, debit cards and company procurement cards; they are all referred to as 'corporate cards' in this Policy and this policy is applicable to anyone that uses a corporate card.

The application of this policy is to be in conjunction with the Muswellbrook Shire Council Code of Conduct and any legislative requirements of the *Local Government Act 1993* that may be enforced.

4. Definitions

Corporate Credit Card	Credit cards issued to Council Officers which are used by Cardholders to engage in transactions relating to the purchase of goods and services on behalf of Council. Referred to as 'Corporate Card' throughout this policy.
Council Officer	An employee of Council, including the General Manager for this policy.
Purchasing Cards	Refers to a debit card issued by the Card Issuer which is used by Cardholders to engage in transactions relating to the purchase of goods and services on behalf of Council. Purchasing cards are also known as Debit Cards and Company Procurement Cards. Referred to as 'Corporate Card' throughout this policy.
The Cardholder	the Council Officer or Councillor using the Corporate Card, including the General Manager and Mayor.
Virtual Credit Card	A credit card that is not issued as a physical card, rather a 16-digit number provided to Council for use in card-not-present transactions. The Virtual Credit Card card is not linked to a Cardholder but is established in Council's name. Referred to as 'Corporate Card' throughout this policy.

Note: **Fuel Cards** are covered under Council's Motor Vehicle Fleet Policy

5. Policy Statement

Corporate cards provide an alternate procurement channel to approved Council Officers and Councillors to allow them to efficiently procure low value items.

Corporate cards provide access to Council funds. For this reason, the safety and security of the card and its details are paramount to ensuring that Council's resources are not misused or misappropriated.

Responsibility of usage, safekeeping and record keeping of any corporate card lies with the cardholder. This Policy and the associated procedures of Council are designed to ensure the use of corporate cards achieves the stated objectives while allowing the Council to remain diligent in ensuring all related expenditure is legitimate.

Corporate Cards do not have a cash advance facility.

5.1 Eligibility to hold or use a Corporate Card

Corporate Cards are only available on approval to a Council Officer who:

- Has the appropriate financial and operational delegations to incur expenditure on behalf of Council
- Has approval from their Manager and their Director
- Is an ongoing or fixed term employee of the Council
- Occupies a position that has a regular and demonstrated need to purchase goods/services that would benefit from being a corporate card process rather than the traditional purchasing process
- Is willing to abide by this policy, the associated Council documentation and procedures and the conditions of use as stated in the Council application forms, the corporate card providers terms and conditions and Council's Procurement Policy and Procedures

Corporate cards are not issued to staff contracted through an employment agency.

Credit cards are not issued to Councillors, however a purchasing card may be issued based on application of the Councillor and approval of the General Manager.

The General Manager is eligible to hold a Corporate Card.

The use of Corporate Cards is restricted to circumstances where the application of Council's standard accounts payable process is unsuitable.

Company Procurement Card allocated to Admin Building is used with approval of Manager or Director.

5.2 Appropriate uses of a Corporate Card

Corporate cards are solely for business purposes and are only used in a manner compliant with this policy and the associated procedures.

Appropriate uses of a corporate card include:

- ✓ Payment for goods/services in full;
- ✓ Deposits;
- ✓ Corporate subscriptions for Council;
- ✓ Approved training/conference fees;

- ✓ Approved travel, accommodation, parking expenses, food and beverage while away on work related activities;
- ✓ Food and beverage for work related events approved by Director or General Manager;
- ✓ General consumables other than stationery and office supplies; and

Equipment or services, other than information technology hardware or services, with a value less than \$1,000. (Please refer to the Procurement Policy and adhere to any required procedures prior to the purchase transaction). Inappropriate uses of a Corporate Card include:

- ✗ Any private or personal expenditure;
- ✗ The purchase of gifts, food and related items in relation to non-business activities such as birthday celebrations, gifts, staff farewell's, staff social events, celebratory lunches/dinners
- ✗ Cash advances;
- ✗ Fuel, except in an emergency (fuel card is the first point of use);
- ✗ For the purchase of any item that is available from Council's Store unless urgently required and outside of Store opening hours;
- ✗ Unofficial entertainment;
- ✗ Information technology hardware or services (other than if purchased by the IT Team) unless approved by the ICT Manager prior to purchase;
- ✗ Donations of any form;
- ✗ Purchase of Alcohol (unless approved by the General Manager through the Purchase of Alcohol Exemption Form appropriate form);
- ✗ Any link to any form of reward programs or award points or any personal cards or memberships; and
- ✗ Split purchases to avoid credit card limits and procurement policy requirements.

5.3 Transaction Review

An up-to-date record of all authorised Cardholders is recorded and stored by Finance in a Corporate Card Register.

All Corporate Credit Card, Purchasing Card, Company Procurement Card and Virtual Credit Card transactions are reviewed, reconciled and approved on a monthly basis, in accordance with the associated procedures.

5.4 Misuse of Corporate Card

Corporate credit and purchasing cards are issued to Council Officers and Councillors that are in a position of trust in regard to the use of public funds. Periodic analysis of credit card expenditure is undertaken by Finance to identify any potential misuse of a corporate card and/or non-compliance with this policy and associated procedures. Any alleged misuse is reported to the cardholder's Director, who is responsible for investigating the alleged misuse through the course of a formal investigation, in accordance with existing council procedures and the Code of Conduct. Where a breach of Council policy or procedures is identified, the employee may be subject to disciplinary action in accordance with the *Local Government (State) Award 2020* and/or referral to an external agency where appropriate.

6. Roles, responsibilities and delegations

The General Manager is ultimately responsible for the proper management and administration of credit cards within Council. This policy will be monitored by the Finance Manager to ensure compliance.

Role	Responsibilities
Cardholders	<ul style="list-style-type: none"> Responsible for all charges placed against a corporate card. Attach a copy of invoice to transaction and allocate GL Number or PO number at time of purchase. Keep track of expenses made on the corporate card. Not exceed the corporate card limit. Report any misuse or any loss of a corporate card immediately 24/7. Report any fraudulent transactions immediately Ensure all purchases are made in accordance with Council's Procurement Policy and related procedures. Always keep the corporate card secure. Not allow the corporate cards to be used by other Council Officer or Councillor or anyone else. Reconcile monthly statements and submit to Finance for review.
Directors	<ul style="list-style-type: none"> Approve and/or reject Corporate Card applications Investigate breaches of this policy
Finance	<ul style="list-style-type: none"> Reconcile monthly Virtual Credit Card statements. Review Corporate Card reconciliations from individual Corporate Card holders Maintain records once received. Maintain the Corporate Card Register. Apply to the financial institution for new corporate credit cards and for any updates, changes, replacement or cancellation of cards. Provide the General Manager with an accessible record of the council's credit card program borrowing limit and aggregate credit limit of individual credit cards currently issued.
General Manager	<ul style="list-style-type: none"> Act as Approval Officer for the Mayor, Councillors and Directors Ensure Council is not exceeding its total borrowing limit or budget limits
Human Resources	<ul style="list-style-type: none"> Notify Finance immediately of staff departures
Program Administrator	<ul style="list-style-type: none"> Council's Senior Financial Accountant will act as the Program Administrator for the Corporate Credit Card facility. Council's Finance Manager will act as the backup Program Administrator for the Corporate Credit Card facility. To allow appropriate segregation of duties, neither of these roles is to hold a Corporate Credit Card.
Managers	<ul style="list-style-type: none"> Determine and approve Council Officers within their department who require a corporate card. Ensure credit limit is within the card holder's financial delegation Review and approve all corporate card transactions within their Department
Records	<ul style="list-style-type: none"> Action monthly corporate credit card statements to cardholders.

7. Dispute Resolution

Any breaches of this Policy will be referred to the General Manager for appropriate action. Or in the case of a breach by the General Manager, this will be referred to the Mayor.

8. Associated Documentation

8.1 Legislation and guidelines

The following Legislation impacts the use and control of corporate credit cards:

- *Local Government Act 1993*;
- *Local Government (General) Regulations 2021*;
- *Independent Commission against Corruption Act 1988*;
- *Public Interest Disclosures Act 1994*;
- *Crimes Act 1900*;
- *A New Tax System (Goods and Services Tax) Act 1999*;
- *NSW State Records Act 1998*;
- *Government Information (Public Access) Act 2009*; and
- *Privacy and Personal Information Protection Act 1998*.
- Office of Local Government Guideline on the Use and Management of Credit Cards (Doc ID: 1472450)

8.2 Policies, procedures and forms

- [Model Code of Conduct](#) (Doc ID:1436817)
- [Fraud and Corruption Control Policy](#) (Doc ID: 1240663)
- [Councillor Expenses and Facilities Policy](#) (Doc ID: 919536)
- Motor Vehicle Fleet Policy (Doc ID: 919542)
- Purchase of Alcohol Exemption Form (Doc ID: 1464980)
- Corporate Credit Card Cardholder Procedure and Application Form (Pending)
- Company Procurement Card Cardholder Procedure and Application Form (Pending)
- Debit Card Cardholder Procedure and Application Form (Pending)
- Virtual Credit Card Cardholder Procedure and Application Form (Pending)
- Corporate Credit Card Administration Procedure (Pending)
- Company Procurement Card Administration Procedure (Pending)
- Debit Card Administration Procedure (Pending)
- Virtual Credit Card Administration Procedure (Pending)
- Disciplinary Procedure (Doc ID: 1285893)

Strengthening local government

Office of Local Government

GUIDELINE ON THE USE AND MANAGEMENT OF CREDIT CARDS

UNDER SECTION 23A OF THE *LOCAL GOVERNMENT ACT 1993*

September 2021

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ACCESS TO SERVICES

The Office of Local Government located at:

Street Address: Levels 1 & 2, 5 O'Keefe Avenue, NOWRA NSW 2541

Postal Address: Locked Bag 3015, Nowra, NSW 2541

Phone: 02 4428 4100

Fax: 02 4428 4199

TTY: 02 4428 4209

Email: olg@olg.nsw.gov.au

Website: www.olg.nsw.gov.au

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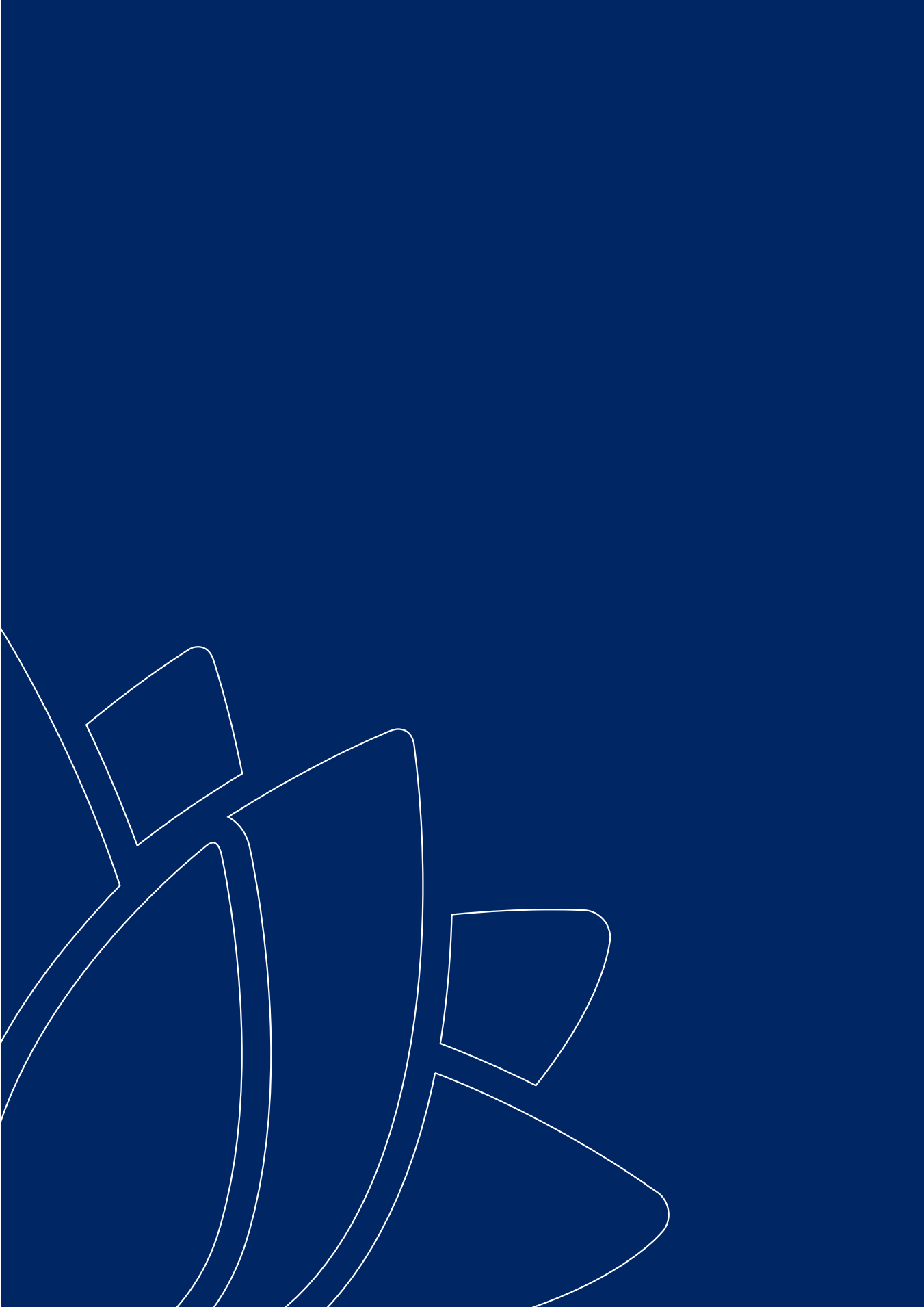
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Introduction

The *Local Government Act 1993* (section 8B) and the *Local Government (General) Regulation 2021* (clause 209) require all councils to establish effective internal control mechanisms for financial management, expenditure and accounting records.

The Guideline on the Use and Management of Credit Cards (the Guidelines), established under section 23A of the *Local Government Act 1993* (LG Act), support these legislative responsibilities and provide specific sector-wide guidance on how to establish effective controls in relation to credit card use and management. They are based on the NSW Treasury guidelines that apply to state agencies.

The Guideline suggests a minimum framework for the use and management of credit cards to ensure that risks associated with their use and management are minimised. The guidance in this document applies equally to the use of Purchase Cards (PCards) and Virtual Cards (VCards) where councils use these facilities.

It provides councils, county councils and joint organisations with the necessary information to put in place internal controls surrounding the establishment, management, review and maintenance of a credit card policy and related procedures. It also seeks to reinforce the responsibilities of council officers when exercising functions in relation to sound financial management.

The Guideline is structured in two parts: core responsibilities and operational guidance. The two core responsibilities and associated actions provide the foundation upon which councils should shape their credit card policy. Operational guidance expands on these actions using a risk-based approach and includes advice on both the management of a credit card program and the responsibilities of individual cardholders.

The use and management of credit cards by councils is an important element of council operations and internal controls that must be included in each council's risk management framework and regularly reviewed as part of the audit, risk and improvement committee's and internal audit function's four-yearly strategic work program¹.

From June 2022, each council (including county councils and joint organisations) in NSW will be required under section 428A of the LG Act to appoint an audit, risk and improvement committee to review the council's financial management, statutory compliance and fraud and corruption controls.

Each council will also be required under the *Local Government (General) Regulation 2021* to establish and operate an effective risk management framework and internal audit function to support the work of these committees.

¹ The Guidelines for Risk Management and Internal Audit for Local Councils in NSW will provide more information about councils' statutory requirements in relation to audit, risk and improvement committees, risk management and internal audit. They will be made available at www.olg.nsw.gov.au

Part A

Developing a Credit Card Policy

Core Responsibilities

These core responsibilities are considered fundamental to establishing and maintaining an effective and efficient credit card policy and related procedures that ensures expenditure is always carried out in the public interest. Supporting each of these core responsibilities is a list of suggested actions that, when implemented together, will establish a minimum framework for the use and management of credit cards.

1 Core responsibility 1

The General Manager is ultimately responsible for the proper management and administration of credit cards within the council.

- 1.1 The General Manager shall ensure that an internal approval process is established for council officers and councillors (the Cardholder) to obtain and use credit cards. This should be consistent with the requirements of the Card Issuer.
- 1.2 The council's internal approval process should ensure the following before a credit card is provided to a Cardholder:
 - the Cardholder has the appropriate financial and operational delegations to incur expenditure on behalf of the council
 - the Cardholder has appropriate credit card limits set (monthly spend limit, transaction limit, and (only if deemed necessary for the smooth conduct of council business) ability for cash withdrawal determined and, if so, these limits include a cash withdrawal monthly limit and cash withdrawal transaction limit)
- 1.3 The General Manager shall establish and implement a Credit Card Policy as well as procedures to support the credit card policy appropriate to the size of the council. As a minimum, the credit card policy and related procedures should address:
 - the council is not exceeding its total borrowing limit or budget limits by issuing the credit card to the Cardholder.
 - roles and responsibilities relating to credit card use, management and administration. This may include Credit Cards, Purchasing Cards (PCards)², Virtual Cards (VCards)³, Fuel Cards, Store Cards and CabCharge.⁴,
 - requirements for approval, issuance of credit cards and closure of accounts,
 - criteria for eligibility to obtain a credit card,

² Purchasing card (Pcard) refers to a credit card issued by the Card Issuer (generally a bank, building society or credit union) which is used by Cardholders to engage in transactions relating to the purchase of goods and services on behalf of the organisation. Pcards are also known as corporate cards, government cards and procurement cards.

³ Virtual card (vCard) refers to a credit card that is not issued as a physical card, rather a 16-digit number provided to the supplier for use in card-not-present transactions. The vCard card is not linked to a Cardholder but is established in the council's name (with one or many users). To protect the card security, typically one card is created for use with a single supplier (Merchant).

⁴ Note that some credit facilities, such as fuel cards, may be covered under different corporate policies, such as a vehicle management policy. If this is the case, noting this in the credit card policy is recommended and the principles outlined in this Guideline should be reflected in these associated policies.

- credit limits, thresholds and restrictions,
 - restrictions, including on prohibited items and supplier merchant blocks,
 - the types of payments that are to be procured via an alternative method to ensure consistency with other corporate policies (for example, via a purchase order or established council supply contracts),
 - Cardholder training requirements,
 - requirements for transaction acquittal, including independent reconciliation of the General Manager and Mayor's credit cards as well as the responsible accounting officer / Chief Financial Officer or any other officer that can approve payments for credit card expenditure, and guidance for staff on how to escalate concerns,
 - requirements for reconciliation and approval (taking into consideration segregation of duties),
 - transaction dispute processes agreed with Card Issuer,
 - best practice for Cardholders to ensure the security of credit cards,
 - the process for reporting lost or stolen credit cards with Card Issuer,
 - infraction, issues management and account cancellation,
 - reporting fraud and corruption processes,
 - software management (including user access and security),
 - Cardholder security digital records management, and
 - processes for the review and continuous improvement of the council's credit card policy.
- 1.4 The council should ensure there is an accessible and up-to-date record of all authorised Cardholders (a Credit Card Register⁵) with approval records from the appropriate line manager as well as the credit card Program Administrator (see section 4.2), authorising the card issuance and credit limit.
- 1.5 The General Manager should maintain an accessible record of the council's credit card program borrowing limit and aggregate credit limit of individual credit cards currently issued, (as well as PCard, Fuel Card, Store Card, Cabcharge and VCard limits where applicable). This may be combined with the Credit Card Register.
- 1.6 The General Manager should undertake appropriate actions to not exceed the council's total program borrowing limit and may wish to adjust the credit card program total program borrowing limit to meet the ongoing needs of the council.
- 1.7 The General Manager should ensure that a direct debit facility is implemented with the Card Issuer for the automatic payment of monthly credit card accounts in full to eliminate any late payment fees and interest charges.
- 1.8 The General Manager should ensure that the risks associated with the council's credit card program are subject to a risk assessment as part of the council's risk management framework to ensure identified risk treatments remain adequate or are properly remedied in a timely manner. See section 5.3 for further information.

⁵ A Register may consist of retained credit card applications in a single file; a separate register; and/or a function report provided online by the Card Issuer.

2 Core responsibility 2

Cardholders understand and are accountable for the responsible use of credit cards.

- 2.1 Cardholders must use credit cards for business purposes only and in a manner compliant with council's credit card policy and related procedures.
- 2.2 In relation to using their credit cards, Cardholders are responsible for:
- complying with the terms and conditions of the Card Issuer,
 - the safety and security of their card, card details and other requirements,
 - knowing the administrative conditions of their card and account, including relevant limits, thresholds and restrictions,
 - ensuring that the credit limits are not exceeded (purchases must not be split to negate single transaction limits),
 - obtaining and retaining all relevant documentation for all transactions. The Australian Tax Office (ATO) stipulates that all transactions above \$82.50 must have a tax invoice for GST purposes. It is recommended that all credit card transactions be substantiated, where possible, with an official tax receipt regardless of the amount, and
 - the timely acquittal of transactions, ensuring the time given is no greater than the time stipulated by the financial institution to log a dispute over errant transactions.
- 2.3 Cardholders should notify the Card Issuer directly in the following circumstances to reduce the risk of fraudulent transactions occurring:
- the loss or theft of the credit card, immediately regardless of whether it is a working day or weekend, and/or
 - awareness that an unauthorised transaction has occurred, at time of occurrence or at end of month reconciliation (whichever is the earliest).
- 2.4 Cardholders or their line manager should notify the credit card Program Administrator the next working day or as soon as practicable in the following circumstances:
- cessation of employment with the council,
 - a change in the Cardholder's substantive role,
 - a change in the nature of the Cardholder's responsibilities that no longer require the Cardholder to use a credit card (whether or not this includes a change in their substantive role),
 - a change to the operational or financial delegation limits that are associated with the Cardholder's role,
 - a prolonged leave of absence from performing their role (the council's credit card policy should advise what time period is considered a prolonged absence but is usually considered any absence longer than 8 weeks),
 - the credit card has been suspended or cancelled,
 - the loss or theft of the credit card, or
 - on awareness that an unauthorised transaction has occurred, at time of occurrence or at end of month reconciliation (whichever is the earliest).

Part B

Operational Guidance

This Operational Guidance builds on the above core responsibilities by assisting councils to develop and tailor their credit card policy and related procedures to their size, complexity and risk profile, and provides Cardholders with information to help them understand their responsibilities.

3 Risk Management

3.1 A council's credit card policy and related procedures should seek to manage risks specific to the use of credit cards as part of the council's overall risk management framework. There are, however, particular risks associated with the use and administration of credit cards that will need to be identified and managed. Examples include:

- the risk of inappropriate use and waste (defined as any uneconomical, inefficient or ineffective use of resources, authorised or unauthorised, which results in a serious and substantial loss of public funds or resources),
- the potential for transaction and/or accounting errors (e.g. duplication of payments), and
- the application of inappropriate purchase methods (e.g. directly purchasing an item or service on credit card without assessment of any contract terms, rather than seeking to negotiate appropriate contract terms and conditions).

3.2 Risk is defined as the impact of uncertainty on objectives. In the context of credit cards, this risk will largely relate to those aspects of the use and management of credit cards

that could affect a council's overall financial position and ongoing financial management. However, risks arising from the use and administration of credit cards can also affect other objectives including those associated with procurement, service delivery and/or reputation.

3.3 One of the most significant risks associated with credit card administration and use that can adversely affect a number of objectives is fraud. The Independent Commission Against Corruption (ICAC) provides some examples of the potential fraud risks associated with credit cards⁶ including:

- a Cardholder charging personal expenses to the council credit card,
- a Cardholder and a client colluding to misuse a council credit card,
- a Cardholder using the card's personal identification number to withdraw cash for their own or another's benefit,
- a Cardholder falsifying, destroying or damaging receipts and other records, and
- one or more council officers colluding for improper benefit – for example, the Cardholder colluding with another council officer whose role is to check expenditure.

⁶ For further information on corruption prevention as it relates to credit cards, see <https://www.icac.nsw.gov.au/prevention/corruption-prevention-advice-topics/credit-cards>

3.4 While a number of risk types, together with specific examples of risks associated with credit cards have been provided here, it is important that councils engage in a structured risk assessment as part of their overall risk management framework to ensure that they are able to identify and assess the particular risks in relation to the use and administration of credit cards in their organisation. It is important not to rely only on previous experience to identify risks associated with credit card use. This is where it is useful when reviewing risk management strategies to involve key stakeholders including Cardholders, merchants and the Card Issuer.

Councils should also seek to keep up to date with new or emerging risks, especially those associated with the application of new technologies or during times of organisational change. Additionally, councils should endeavour to share their knowledge and experience with other councils, for example through joint organisations, in order to continually improve their management of these risks.

Councils should also refer to various audit reports of the Audit Office of NSW⁷ and other jurisdictions⁸ that have undertaken audit or assurance work relating to the use of credit cards to familiarise themselves with areas of concern that may be relevant to their organisational context.

⁷ For example, the 'Report on Local Government 2019': <https://www.audit.nsw.gov.au/our-work/reports/report-on-local-government-2019> and 'Credit card management in Local Government': <https://www.audit.nsw.gov.au/our-work/reports/credit-card-management-in-local-government>

⁸ Refer to Australian National Audit Office reports such as <https://www.anao.gov.au/work/performance-audit/defences-management-credit-and-other-transaction-cards>

4 Preventative Controls

Preventative controls are those designed to prevent errors and irregularities from occurring. Some examples of preventative controls for credit cards include:

4.1 Policies and Procedures

Setting out a council's expectations in a clear and well communicated credit card policy and related procedures is fundamental to the establishment of a strong control environment. Supporting procedures establish and standardise behaviours and help council officers, Cardholders and others to understand and fulfil their obligations.

Councils should consider the appropriate level of guidance required to ensure that their credit card policy expectations are understood and met by all council officers, Cardholders and other stakeholders. This may include, for example, supporting procedures on:

- card issue, transfer, and cancellation. Action to address damaged, lost or stolen cards should also be clearly described,
- routine review of issued cards, specifically to verify that credit cards are issued to staff with an identified business requirement and appropriate financial delegation (to purchase goods or services on behalf of the council) and to ensure that each Cardholder is still the appropriate recipient of a card,
- independent periodic monitoring and review of credit card use, management and overall performance across the council (see section 5.3 for suggested timeframes and further information),

- the applicable billing cycle and standardising the approval, acquittal and authorisation of transactions,
- processes for transacting via internet, phone or in person with a credit card, including any mandatory or prohibited methods of transacting,
- the retention of appropriate supporting documentation (including electronic documentation) to be retained in connection with the use of credit cards. This should include information about actions to be taken where the appropriate supporting documentation is unavailable or has been misplaced, or for unusual transactions that might require more than standard supporting documentation,
- allowable uses of the credit card and supporting staff to address unrecognised transactions, discrepancies, errors or inadvertent misuse and procedures for following up issues with merchants and/or the Card Issuer,
- secure storage and security of cards,
- user access to, and security requirements on, administration systems and applications supporting the credit card program, and
- confidentiality and security surrounding the use of credit card and related data, specifically accessing, retaining and sharing of card and cardholder details or other transaction details.

4.2 Nominating a Program Administrator

Councils should nominate the role of Primary Program Administrator (PA) and back-up Program Administrator to act as a central point of contact for Cardholders, Merchants, and the Card Issuer. PA's undertake certain functions within the Card Issuer's Administration System not accessible to other council staff including Cardholders. A nominated PA should be a council officer with relevant skills and experience to undertake the role.

The responsibilities of Program Administrators may include:

- supporting the development, review, implementation and communication of the council's Credit Card Policy and procedures
- receiving completed and approved Cardholder applications and submitting applications to the Card Issuer
- ensuring that Cardholders and approvers have completed reconciliation processes in a timely manner
- liaising with the Card Issuer about the administration of cards, including issuance, changing of limits, thresholds and restrictions, and cancellations
- liaising with the Card Issuer regarding the Card Issuer's Administration System.

4.3 Credit Card Limits and Restrictions

Limits and restrictions should be set for each Cardholder. In setting these the council should consider:

- the responsibilities of the role or position held by the Cardholder,
- the level of current expenditure of the Cardholder (subject to total program borrowing limit of the council),
- the types of expenditures made by the Cardholder, and
- ensuring consistency with other corporate policies.

Spending Limits

Councils can tailor the spending limits for individual Cardholders. Councils should ensure that spending limits align with its procurement policy. For example, the limit might be set to \$1,000 consistent with a procurement policy that requires a Purchase Order for any transaction greater than \$1,000. Any exceptions should be clearly included in the credit card policy.

It is good practice for councils to set and communicate the following for each Cardholder:

- maximum limits for each monthly billing period
- maximum limits on the amount of any individual transaction.

Cash Withdrawals

It is expected that credit cards will not be used for cash advances or cash withdrawals. For this reason, cards are generally issued with an existing block on cash withdrawals.

Some councils may wish to allow for cash withdrawals in particular circumstances, such as work in rural and remote locations where credit card facilities are not as widely used or when Cardholders are travelling overseas. In those cases, the council will need to manage the cash limits in accordance with internal approval structures. In these instances, it is also good practice for councils to set and communicate the following for each Cardholder:

- maximum transaction limits for cash withdrawals
- maximum monthly limits for cash withdrawal.

Prohibiting 'Purchase Splitting' and certain types of purchases

'Purchase splitting' occurs where Cardholders split one transaction into several purchases in order to avoid exceeding credit limits. This is also known as 'order-splitting' or 'stringing' arrangements. While these types of arrangements will usually be in breach of the terms of use of credit cards, councils should also consider explicitly prohibiting 'purchase splitting' arrangements in its credit card policy and associated procedures. Where a single transaction would exceed a Cardholder's credit limit, alternative payment arrangements (along with appropriate approvals if such a purchase amount is above the person's financial delegation) should be sought. Councils should also look to prohibit the purchase of specific items deemed non-business related or else are covered under alternative purchasing arrangements (refer to risk management at section 3 above).

Merchant Blocks

Banks require suppliers or merchants to have identifying codes based on the type of goods or services they sell. Councils may wish to apply blocks to some merchants based on these identifying codes. This prevents Cardholders from using their credit card to transact with these suppliers or merchants.

4.4 Segregation of Duties

Segregation of duties provides an important mechanism for councils to better prevent and detect errors, fraud and misuse. Credit card expenditure should be subject to independent approval to incur expenditure.

Administration of a credit card program should, where possible, be undertaken by someone who is not a Cardholder. Where a council has limited resources, clearly documented alternative control activities (such as periodic review processes by appropriate council officers) should be implemented instead. In cases where the PA is also a Cardholder, additional controls should be established around the maintenance and reconciliation of the PA's credit card.

4.5 Approvals and Authorisations

As described above, councils should establish an internal approval process for the issuance and use of credit cards. Credit cards should only be issued to individuals who are council employees or on the governing body. Councils are bound by the terms and conditions set by the card issuer and each credit card should be used by the Cardholder only.

While credit cards are assigned to particular individuals, a council's financial and operational delegations will generally refer to roles/positions rather than individuals.

If a Cardholder changes role/position or temporarily acts in a higher position, the continued use of the credit card by that individual, which is likely linked to their previous role/position, should be reviewed, as well as the ongoing appropriateness of any card limits, thresholds or restrictions. Councils should also have processes in place to ensure that credit cards are immediately cancelled upon the cessation of a Cardholder's employment. This should take into account any extended leave a person might take prior to cessation of employment.

4.6 Safety and Security of Credit Cards

Credit cards provide access to council funds. For this reason, the safety and security of the card and its details are paramount to ensuring that a council's resources are not misused or misappropriated. There are various points of interaction between the Cardholder, Council, Merchant and Card Issuer where the credit card and/or card details may be mishandled.

Ongoing Security, Storage and Use of Credit Cards

Councils should make clear to Cardholders their expectations concerning the storage of credit card details. In particular, councils should assess the risks associated with allowing a Cardholder to use their card when travelling overseas.

While credit cards generally have some inbuilt security features, physical security is extremely important and Cardholders should not allow others to undertake transactions on their behalf using their card details.

Furthermore, councils should ensure that Cardholders are aware of card issuer and organisational emergency contact details, including those for the PA, in the event they become aware that the details of the card have been compromised.

Notifying Card Issuer and Council of Loss or Theft

Cardholders should be aware of the process for reporting lost or stolen cards. The Cardholder should immediately notify the Card Issuer (available 24 hours, 7 days per week), as well as their line manager and the Program Administrator. Council should provide all Cardholders with relevant organisational and Card Issuer contact information at the time of issuing the credit card.

‘Card-Not-Present’ Transactions

There can be additional risks associated with transactions where credit cards are not physically presented, such as in telephone and internet transactions. Councils should consider and address these specific risks in credit card procedures and training.

One of the key risks is the physical separation between the Cardholder and the merchant making it difficult in some circumstances for the Cardholder to verify the identity of the merchant. For all ‘card-not-present’ transactions, Cardholders should ensure, to the best of their knowledge, that the merchants they are dealing with are known and reputable.

Cardholders using the internet to pay for purchases should ensure that they are familiar with, and adhere to, their organisation’s internet use and security policies and procedures. At a minimum, Cardholders should check that the merchant’s secure site address starts with <https://> and NOT <http://>. Sites that start with <https://> have an added encrypted transaction layer.

Cardholders will need to ensure they obtain proper records of transactions conducted by mail, telephone or internet to support timely acquittal of transactions. Electronic receipts should be properly stored for ease of access at the time of acquittal.

4.7 Security of Systems, Data and Information

Cardholders, PAs and other stakeholders manage and maintain the credit card program through an integrated web of systems and applications. For those councils that operate an electronic system for the management and reconciliation of credit cards, regular consideration should be given to the impact of cyber security risks to their credit card program and risks related to accessing, storing and sharing credit card-related data and information (including Cardholder personal details, credit card numbers, transaction data). This applies to the extent that it impacts on manual, paper-based systems of credit card management.

PAs or other credit card system users with privileged or administration user system access (such as reporting or capability to manipulate or export data relating to card details, Cardholder details, merchant details, account or billing details or other transaction data) should receive an appropriate level of training and only hold a level of access commensurate with the role they are undertaking, with that access removed when they no longer need to have access. Controls should be put in place to ensure that such officers who have a credit card themselves are subject to independent oversight.

Practices for training and continual user awareness surrounding the use of credit card systems may be beneficial to controlling risks associated with systems use. Also, cyclic reviews (such as quarterly or biannually) of user access, automated updates to user access passwords or codes, and/or two-factor authentication are all examples on the types of controls that could be used.

Further, users should be trained on the appropriate classification, labelling and handling of information along with the Information Protection Principles⁹ when dealing with council financial data and personal information. Councils should provide details on how users can ensure the proper handling and protection of data and information to ensure the basic obligations to protect information councils collect on their own activities and about individuals.

4.8 Training and Induction

Training Cardholders on their responsibilities is an important control that reduces the risk of credit card misuse. Training should provide Cardholders with the knowledge and skills to effectively deliver on their responsibilities and understand their accountability for credit card use. The training should cover all areas of credit card policies and procedures.

Training on, and council's expectations in relation to, credit card use and management, should be provided to Cardholders at induction or before being issued a credit card. In addition, it is recommended that the Cardholder signs a statement of responsibility to acknowledge their responsibilities with respect to the use and management of their credit card.

Training on the proper use of credit cards should also be provided to councillors, ideally as part of their general induction as new councillors that occurs at the start of each council term.¹⁰ Councillors have a responsibility for the sound financial management and sustainability of the council under the *Local Government Act 1993*.

4.9 Ongoing Communications

An ongoing communications program is good practice as it allows councils to:

- reinforce their policies, processes and procedures, including those related to fraud and misconduct
- remind Cardholders of their responsibilities, including timely reconciliation
- update Cardholders and other council officers on changes to policies, processes, procedures or terms and conditions of use
- ensure awareness of various training and support facilities offered to Cardholders and other council officers.

⁹ See: <https://www.ipc.nsw.gov.au/information-protection-principles-ipp-agencies>

¹⁰ For further guidance on how to undertake induction and training for new councillors, visit the OLG website: www.olg.nsw.gov.au

5 Detective Controls

Detective controls are designed to identify and rectify errors and irregularities. Some examples of detective controls that councils may employ include:

5.1 Expenditure Acquittals and Reviews

Acquittal and review of credit card transactions are important detective controls for councils. In the first instance, acquittals will be undertaken by a Cardholder to compare expenditure from advice provided by the Card Issuer to their supporting documentation to ensure that transactions are accurate. This process should be completed as soon as possible and, if possible, within 30 days of advice from the Card Issuer to allow any disputed transactions to be reported to the Card Issuer in a timely manner.

A review of the Cardholder's transactions should also be undertaken by the Cardholder's direct manager. The Cardholder's direct manager (or in the case of the General Manager, the Mayor) is usually the most appropriate person to conduct the review as they will be familiar with relevant credit card policies and guidelines for credit card use and have knowledge of the activities of the Cardholder. However, where the council determines that the direct manager is not the appropriate person to exercise the review, they should nominate another reviewer based on the following considerations:

- seniority of the reviewer relative to the Cardholder
- independence of the reviewer
- knowledge of the Cardholder's activities
- knowledge of the council's credit card policy.

The reviewer will be responsible for forming a view on whether the expenditure incurred was for business purposes and was consistent with the Cardholder's responsibilities and activities. The reviewer should assess whether:

- the expenditure incurred was appropriate for the purpose and reasonable
- the expenditure categorisations align with those allowed by the council
- the appropriate supporting documentation has been attached
- financial systems ledger costings information is correct.

In addition to these processes, council should ensure that there are processes for regular independent reviews of a sample of Cardholder transactions.

There should be an audit trail to record the date of all reconciliations and reviews as well as to verify the identity of the Cardholder and reviewer.

Procedures and controls should also be established over the maintenance and storage of records of credit card reconciliations and other supporting documentation as relevant, and in accordance with council's record keeping obligations.

5.2 Detecting Fraud

Fraud by its nature is more difficult to prevent and detect than unintentional errors and irregularities. As fraud is an intentional act, perpetrators will often take actions to avoid detection. This includes circumventing existing controls. While any system of control cannot entirely eliminate the risk of fraud, it is necessary to identify and assess fraud risks and design controls specifically to mitigate the risk of fraud.

Protecting a council's resources from fraud and monitoring for suspicious activity of staff and/or third parties is not a simple task. While it may be appropriate for councils with large amounts of assets and/or expenditure to engage sophisticated and integrated fraud prevention and detection systems, all councils will benefit from targeted monitoring for fraud risk. This may include monitoring for:

- unusual or unexpected levels of expenditure
- transactions with unusual types of Merchants
- the use of 'suspicious' words, as identified by the council, to identify exceptions
- transactions for non-business items and services
- multiple transactions for the same or similar items or for the same amount
- inconsistency between expense description and merchant code
- consistent late submission of supporting documentation or outstanding reconciliations
- transactions that have occurred on weekends, public holidays or while the Cardholder is on a leave of absence.

However, it should not be assumed that fraud has occurred if an instance listed above is identified. There may be legitimate reasons for any of these occurrences. Rather, the indicators should prompt further inquiry to ensure that they reflect appropriate use of the credit card.¹¹

5.3 Monitoring and Review of Credit Card Controls

Councils should design and implement a credit card monitoring and review schedule as part of its overall risk management framework. This schedule should provide a systematic and continuing assessment of internal controls of the credit card program to ensure that identified and implemented controls remain effective and fit for purpose. This should include testing whether existing controls are operating effectively using techniques such as re-performance, observation or inspection of documentation. Audit logs of the activities of PAs or other credit card system users with privileged or administration user system access should also be kept and reviewed as part of this schedule.

Regular reviews are also necessary to ensure the system of controls continues to effectively and efficiently mitigate credit card risks, because risks will not be static. Reviews with individual self-assessments or like reports being provided to line or senior management for review may include:

- user reviewed or guided self-assessment (based on a checklist or other tool that identifies key controls to be verified)
- line management or PA reviews (based on a defined set of controls to be verified. This may include data mining and analytics or guided assessment)
- independent or third-party reviews, e.g. internal or external audit.

Councils will need to assess the value of employing different monitoring and review methods. A range of frequent, lower cost, risk-based reviews in addition to less frequent major reviews may provide an appropriate level of assurance.

¹¹ For further information about managing fraud generally, see <https://www.audit.nsw.gov.au/our-work/reports/fraud-control-improvement-kit-meeting-your-fraud-control-obligations>. Further information and guidance to prevent fraud and corruption is also available from ICAC: <https://www.icac.nsw.gov.au/prevention>

An adapted version of an example periodic monitoring and review frequency table (Table 1, below) designed by the Australian National Audit Office¹², provides some guidance on the different types of review and monitoring that councils should engage in, and the relevant timeframes.

Table 1: Suggested periodic monitoring and review timetable

Indicative Frequency	Nature of monitoring and review
Ongoing	<ul style="list-style-type: none"> Recording of unusual events (e.g. record instances of reported personal use of credit cards so any recurrence is noted; record Merchants involved in disputed transactions). Assess and act on overdue reconciliations by Cardholders.
6 – 12 months	<ul style="list-style-type: none"> Review credit card use against credit limits for possible adjustments. Review credit cards not used for a significant period to establish if they are still required. Sample testing of transactions with higher risk of misuse (e.g. check whether transactions properly established value-for-money and compliance with guidelines; check whether transactions with duplicated details are Merchant error). Statistical analysis of utilisation patterns (e.g. identify opportunities for centralised procurement of some types of goods). Reconcile Individual Credit Card Application / Statement of Responsibility / Card Statements Issued with the Card Issuer's Card Management Reports.
1 – 4years	<ul style="list-style-type: none"> Internal audit review covering credit cards as appropriate (e.g. processes for issue and return; whether reconciliation and review procedures are being followed). Review expenditure in areas where judgement plays an important role (e.g. travel and meals) in order to assess whether the expenditure is remaining within public expectations.

¹² Australian National Audit Office 2013, [Controls over Credit Card Use](#): Report No. 35 2012-13, Australian National Audit Office, Canberra, viewed 3 June 2021.

5.4 Internal Reporting

Councils should utilise the Card Issuers Administration System to ensure that they are aware of each card issued to Cardholders within the council, including the relevant administrative conditions attached to each card. Managers should receive regular reports on credit card usage within their areas, including inactive accounts (where relevant), to allow for review and any updates to be made to the Credit Card Register.

5.5 Internal Audit

A council's Audit, Risk and Improvement Committee and internal audit function have a key role to play in ensuring the integrity of the systems, policies, processes and procedures in place, and should include a review of credit card controls as part of its four-yearly strategic work program¹³ (See Table 1 above).

6 Other Controls

6.1 Automated Controls

Automated systems can greatly assist councils to ensure timeliness and support a consistent format for processes associated with credit card expenditure, for example, automated statements can be sent to Cardholders or an Expense Management System (EMS) can be utilised for transaction management and acquittal processes.

Councils should remain vigilant, however, to ensure that processes are being properly utilised and that they have clear control objectives and provide an audit trail that can be readily monitored and reviewed.

¹³ Refer to the Guidelines for Risk Management and Internal Audit for Local Councils in NSW issued by the Office of Local Government (www.olg.nsw.gov.au) for more information about audit, risk and improvement committee and internal audit work programs.





9.4.5. Upper Hunter Weeds Authority Request for shared Audit, Risk and Improvement Committee

Attachments:	<ol style="list-style-type: none">1. UHWA ARIC Letter 16082022 [9.4.5.1 - 1 page]2. Draft- Guidelines-for- Risk- Management-and- Internal- Audit-for- Local- Government-in- NS W- PDF (0 [9.4.5.2 - 109 pages]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Melissa Cleary (Manager - Governance)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	<ol style="list-style-type: none">6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.6.2.1.1 - Provide transparent reporting to the community about Council's finances.

PURPOSE

To present the request from Upper Hunter Weeds Authority that Muswellbrook Shire Council considers establishing a shared Audit Risk and Improvement Committee arrangement with the Upper Hunter County Council, for the consideration of Council.

OFFICER'S RECOMMENDATION

Council considers the request from Upper Hunter Weeds Authority that Muswellbrook Shire Council considers establishing a shared Audit Risk and Improvement Committee (ARIC) arrangement with the Upper Hunter County Council, and resolves to:

1. Support the request in-principle; and
2. Delegate authority to the General Manager to negotiate an agreement on a cost recovery basis.

Moved: _____ **Seconded:** _____

BACKGROUND

The *Local Government Act 1993* (the Act) requires that all NSW councils and joint organisations have in place an Audit, Risk and Improvement Committee (ARIC) from 4 June 2022. Under section 428B of the Act, councils and joint organisations are permitted to share ARICs where they reach such an agreement.

Amendments to the *Local Government (General) Regulation 2021*, due to be completed in early 2023, will require all councils and joint organisations to have a risk management framework and an internal audit function and to prescribe membership requirements for ARICs. **Councils and joint organisations must comply with these requirements from 1 July 2024**, and attest to their compliance in their 2024-25 annual reports and thereafter.



CONSULTATION

Acting General Manager

Acting CFO

Corporate Lawyer

Manager Governance

Internal Auditor

Chair, Muswellbrook Shire Council ARIC

General Manager, Upper Hunter Weeds Authority

REPORT

Council has received a request from the Upper Hunter Weeds Authority for Muswellbrook Shire Council to consider establishing a shared ARIC arrangement with the Upper Hunter County Council.

The *Risk Management and Internal Audit for local government in NSW Guidelines* (pp. 16 – 17 attached) includes advice regarding shared ARIC and recommends that “councils should develop and sign a formal agreement with the other councils in the shared arrangement which outlines how the shared arrangement will operate and costs shared.”

Prior to allocating further resources to the establishment of a shared ARIC with Upper Hunter County Council, Council Officers are seeking a determination from Council as per the Officer’s Recommendation.

OPTIONS

Council may to determine to:

1. agree to support the request in-principle; and
2. delegate authority to the General Manager to negotiate an agreement on a cost recovery basis;

or

3. deny the request

CONCLUSION

It is recommended that Council considers the request from Upper Hunter Weeds Authority that Muswellbrook Shire Council establishes a shared ARIC arrangement with the Upper Hunter County Council.

SOCIAL IMPLICATIONS

Nil identified.

FINANCIAL IMPLICATIONS

It is recommended that a shared ARIC agreement be negotiated on a cost recovery basis, should Council determine to proceed.

POLICY IMPLICATIONS

None identified

STATUTORY IMPLICATIONS

This report and recommendations are aligned with the *Local Government Act 1993* (section



428B) and Local Government (General) Regulation 2021.

LEGAL IMPLICATIONS

Legal advice would be required in developing an agreement for a shared ARIC, should Council determine to proceed.

OPERATIONAL PLAN IMPLICATIONS

Nil

RISK MANAGEMENT IMPLICATIONS

Should Council determine to proceed, risks would be identified and managed in the development of an agreement for a shared ARIC.

WASTE MANAGEMENT IMPLICATIONS

Nil.

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Community information would be provided as required.



Upper Hunter County Council
Trading as

Upper Hunter Weeds Authority

(A COUNTY COUNCIL CONSTITUTED UNDER THE LOCAL GOVERNMENT ACT 1993)
ABN 85 856 448 971

TELEPHONE – PERSONAL ENQUIRES
Doug Campbell (02) 65410323

2/13 THOMAS MITCHELL DRIVE
MUSWELLBROOK NSW 2333

Derek Finnigan
Acting General Manager
Muswellbrook Shire Council
PO Box 122
MUSWELLBROOK NSW 2333

16 August 2022

Re: Upper Hunter County Council Audit, Risk and Improvement Committee

Dear Derek

As you are aware all councils including county councils are required have or to have entered into an agreement to share Audit, Risk and Improvement Committee (ARIC) from 4 June 2022. However, recent OLG circular 22-21 indicates that if councils are actively taking steps to appoint or share an ARIC, flexibility in the implementation timetable can be accommodated however, full compliance of the ARIC guidelines will be required by 1 July 2024.

As per the Office of Local Government's draft guidelines regarding the appointment of ARIC committees advises that county councils should investigate a shared arrangement with one of their constituent councils.

Due the scale of the Authority's operations and with the Authority's day to day financial management being within Muswellbrook Shire Council's financial system, the Authority requests that Muswellbrook Shire Council consider establishing a shared ARIC arrangement with the Upper Hunter County Council.

I request that I can meet either yourself and/or Council staff regarding this request at your earliest convenience.

Doug Campbell
General Manager

ALL WRITTEN COMMUNICATIONS TO BE ADDRESSED TO THE GENERAL MANAGER
PO BOX 6 MUSWELLBROOK NSW 2333
TELEPHONE: (02) 65410323
Email: admin@uhwa.org.au

RISK MANAGEMENT AND INTERNAL AUDIT for local government in NSW

Guidelines

December 2022



GUIDELINES FOR RISK MANAGEMENT AND INTERNAL AUDIT FOR LOCAL GOVERNMENT IN NSW

2022

ACCESS TO SERVICES

The Office of Local Government is located at:

Street Address: Levels 1 & 2, 5 O'Keefe Avenue, NOWRA NSW 2541

Postal Address: Locked Bag 3015, Nowra, NSW 2541

Phone: 02 4428 4100

Fax: 02 4428 4199

TTY: 02 4428 4209

Email : olg@olg.nsw.gov.au

Website: www.olg.nsw.gov.au

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Background

Background

The *Local Government Act 1993* and the *Local Government (General) Regulation 2021* and these Guidelines require each council in NSW to have an audit, risk and improvement committee, a robust risk management framework, and an effective internal audit function

Background

The *Local Government Act 1993* ('Local Government Act'), the *Local Government (General) Regulation 2021* ('Local Government Regulation') and these Guidelines require each council in NSW to have:

- an audit, risk and improvement committee that continuously reviews and provides independent advice to the council on how it is functioning and managing risk
- a robust risk management framework that accurately identifies and mitigates the risks facing the council and its operations, and
- an effective internal audit function that provides independent advice as to whether the council is functioning effectively and the council's internal controls to manage risk are working.

These three mandatory governance mechanisms are key to ensuring that councils are doing things the best way they can for their communities and are on track to delivering their community's goals and objectives.

Communities themselves will ultimately be the greatest beneficiaries.

If implemented effectively, audit, risk and improvement committees, risk management and internal audit will lead to councils:

- achieving their strategic objectives in the most efficient, effective and economical manner
- having better and more efficient levels of service delivery
- having increased accountability and transparency
- achieving better decision-making and having the confidence to make difficult decisions
- having increased financial stability
- achieving and maintaining compliance with all laws, regulations, internal policies and procedures, and
- better safeguarding their public assets.

Purpose

These guidelines have been developed to assist councils, county councils and joint organisations to comply with statutory requirements under the Local Government Act and Local Government Regulation.

They also seek to strengthen risk management and internal audit practices in NSW councils by setting a minimum standard that reflects a 'best practice' approach.

The Guidelines have been issued under section 23A of the Local Government Act which confers on the "Departmental Chief Executive" of the Office of Local Government the power to prepare, adopt or vary guidelines relating to the exercise by a council of any of its functions.

Councils are required to consider these Guidelines when implementing the requirements prescribed under the Act and the Regulation relating to audit, risk and improvement committees, risk management and internal audit.

These Guidelines replace the NSW Government's *Internal Audit Guidelines for Local Government in NSW* issued in 2010.

The three core requirements outlined in the Guidelines reflect international standards and the recommendations and opinions of internal audit practitioners, councils, councillors, audit, risk and improvement committee members, risk management practitioners, government agencies, experts and community members.

They are also informed by practices in other Australian jurisdictions and give effect to the recommendations of the:

- Independent Commission Against Corruption in its inquiries into Burwood Council (2011) and Botany Bay Council (2017)
- Local Government Acts Taskforce in its review of the *Local Government Act 1993* (2013)
- Independent Local Government Review Panel in its *Revitalising Local Government inquiry* (2013), and
- various performance audits and other reviews conducted by the NSW Auditor-General since 2010.

Based on these recommendations:

- the core requirements outlined in the Guidelines relating to the operation of a council's audit, risk and improvement committee have been modelled on the *Internal Audit and Risk Management Policy for the General Government Sector (TPP 20-08)* developed by NSW Treasury and best practice in the public and private sectors
- the core requirements relating to risk management have been modelled on the current Australian risk management standard, *AS/NZS ISO 31000:2018 Risk Management – Guidelines*, and
- the core requirements relating to a council's internal audit function have been modelled on the Institute of Internal Auditors (IIA) *International Standards for the Professional Practice of Internal Auditing* (the 'International Professional Practices Framework') and best practice in the public and private sectors.

The framework balances these professional standards and best practice approaches with the unique structure, needs and operating environments of metropolitan, regional and rural councils, county councils and joint organisations across NSW.

The release of these Guidelines follows an extensive consultation process. The Office of Local Government thanks all the individuals, councils and bodies involved in the development of these Guidelines and the risk management and internal audit regulatory framework.

Further resources

There has been a wide range of information and guidance developed in recent times by government agencies, experts, practitioners and other bodies to help organisations establish effective audit, risk and improvement committees, risk management frameworks and internal audit functions.

As a starting point, a list of further resources has been included at the end of each core requirement. These resources provide practical information and tools such as examples, templates, checklists and sample documents that councils may find useful when implementing these Guidelines.

Terminology

When a joint organisation is applying these Guidelines, it should substitute the term "council" for "joint organisation", "governing body" for "board", "chairperson" for "mayor", "voting representative" for "councillor" and "executive officer" for "general manager" and "annual report" for "annual performance statement", where appropriate.

Where a county council is applying these guidelines, it should substitute the terms "county council" for "council", "chairperson" for "mayor", and "member" for "councillor", where appropriate.

References to the "Departmental Chief Executive" in these Guidelines refers to the person exercising the functions of the Departmental Chief Executive of the Office of Local Government under the Local Government Act and Regulation.

Statutory framework

The Local Government Act and Local Government Regulation provide the statutory foundations and prescribe the desired outcomes for councils' audit, risk and improvement committees, risk management frameworks and internal audit functions.

Relevant provisions of the Local Government Act and Local Government Regulation are detailed below.

Guiding principles of local government

The guiding principles of the Local Government Act (sections 8A, 8B and 8C) require each council to carry out its functions in a way that provides the best possible value for residents and ratepayers.

The guiding principles also specify that councils are to:

- spend money responsibly and sustainably, and align general revenue and expenses

- invest in responsible and sustainable infrastructure for the benefit of the local community
- effectively manage their finances and assets and have sound policies and processes for performance management and reporting, asset maintenance and enhancement, funding decisions, and risk management practices
- ensure the current generation funds the cost of its services and achieves intergenerational equity, and
- manage risks to the local community, area or council effectively and proactively.

Role of the governing body

To achieve these guiding principles, the Local Government Act (section 223) provides that the role and responsibilities of the governing body include:

- directing and controlling the affairs of the council in accordance with the Local Government Act
- ensuring, as far as possible, the financial sustainability of the council
- ensuring, as far as possible, that the council complies with the guiding principles of the Local Government Act
- keeping the performance of the council under review
- making the decisions necessary to ensure the council properly exercises its regulatory functions, and
- being responsible for ensuring that the council acts honestly, efficiently and appropriately.

Role of the general manager

The Local Government Act (section 335) provides that the general manager is responsible for:

- conducting the day-to-day management of the council in accordance with the strategic plans, programs, strategies and policies of the council – this includes establishing the council's organisational structure and appointing and dismissing council staff (section 332)

- implementing, without undue delay, the lawful decisions of the council
- advising the governing body on the development and implementation of the council's plans, programs, strategies and policies, and
- ensuring that the mayor and other councillors are given timely information and advice and the administrative and professional support necessary to effectively discharge their functions.

The Local Government Regulation (section 209) also requires the general manager to ensure that:

- the council complies with all legal financial obligations, including the keeping of accounting records
- effective measures are taken to secure the effective, efficient and economical management of financial operations within each division of the council's administration
- authorised and recorded procedures are established to provide effective control over the council's assets, liabilities, revenue and expenditure and secure the accuracy of the accounting records, and
- lines of authority and the responsibilities of members of the council's staff for related tasks are clearly defined.

Role of a joint organisation

The Local Government Act establishes joint organisations as a strategic regional body of councils.

The role and responsibilities of a joint organisation under the Local Government Act (section 400R) are to:

- establish regional priorities for the joint organisation area and strategies and plans to deliver these priorities
- provide regional leadership for the joint organisation area and advocate for strategic regional priorities, and
- identify and take-up opportunities for intergovernmental cooperation.

Joint organisations also deliver services and provide assistance to, or on behalf of, councils, and councils are able to delegate certain functions to their joint organisation (sections 355, 379 and 400S).

The Local Government Act (section 400Y) provides that the executive officer of a joint organisation is to:

- conduct the day-to-day management of the joint organisation in accordance with the strategic regional priorities and other plans, programs, strategies and policies of the organisation, and
- appoint, direct and dismiss staff.

Audit, risk and improvement committee

The Local Government Act (section 428A) requires each council to establish an audit, risk and improvement committee to continuously review and provide independent advice to the general manager and the governing body of the council on:

- whether the council is complying with all necessary legislation, regulations and other legal requirements
- the adequacy and effectiveness of the council's risk management framework, fraud and corruption prevention activities, financial management processes, and the council's financial position and performance
- the council's governance arrangements
- the achievement by the council of the goals set out in the council's community strategic plan, delivery program, operational plan and other strategies
- how the council delivers local services and how it could improve the performance of its functions more generally
- the collection of performance measurement data by the council, and
- any other matters prescribed by the Local Government Regulation (including internal audit).

The Local Government Act (section 428B) allows councils to establish a joint audit, risk and improvement committee with other councils including through joint or regional

organisations of councils to function as a shared committee.

The requirements for shared committees in these Guidelines are detailed in core requirement 1.

The Local Government Regulation prescribes the following requirements in relation to the membership and operations of councils' audit, risk and improvement committees:

- Councils must by resolution appoint an audit, risk and improvement committee comprising of a chair and at least two or more other persons as voting members of the committee.
- Commencing 1 July 2024, the chair and other voting members of a council's audit, risk and improvement committee must satisfy the independence and eligibility criteria specified in these Guidelines. Councils must not appoint a person to be the chair or a voting member of the council's audit, risk and improvement committee unless they satisfy the independence and eligibility criteria specified in these Guidelines.
- Councils may appoint one councillor as a non-voting member of its audit risk and improvement committee. Councillors appointed as a non-voting member of an audit, risk and improvement committee must satisfy the eligibility criteria for councillor members of committees specified in these Guidelines.
- For the purposes of section 428A(2)(i) of the Local Government Act, councils' audit, risk and improvement committees are to keep under review internal audit activities.
- The Departmental Chief Executive may approve model terms of reference for councils' audit, risk and improvement committees.
- Councils must adopt by resolution, terms of reference for their audit, risk and improvement committees that are consistent with the model terms of reference for committees approved by the Departmental Chief Executive contained in these Guidelines.

- A council's audit, risk and improvement committee must exercise its functions in accordance with the terms of reference adopted by the council.
- Councils must provide their audit, risk and improvement committee with such access to the general manager and other senior management staff of the council, and any information and resources of the council as may be necessary for the committee to exercise its functions.

The requirements for audit, risk and improvement committees in these Guidelines are detailed in core requirement 1.

Risk management

The Local Government Regulation prescribes the following requirements in relation to risk management:

- Commencing on 1 July 2024, councils must adopt and implement a framework for identifying and managing risk that is consistent with the requirements specified by these Guidelines.
- A council's audit, risk and improvement committee must keep the implementation of the council's risk management framework under review and provide advice to the council on its implementation.

The requirements for risk management in these Guidelines are detailed in core requirement 2.

Internal audit

The Local Government Regulation prescribes the following requirements in relation to internal audit:

- Commencing 1 July 2024, councils must have an internal audit function to keep under review the council's operations and risk management and control activities.
- Councils' internal audit functions must operate in accordance with the requirements specified in these Guidelines.
- The Departmental Chief Executive may approve a model internal audit charter for councils to guide the performance of their internal audit function.

- Councils must adopt by resolution, an internal audit charter that is consistent with the model internal audit charter approved by the Departmental Chief Executive contained in these Guidelines.
- A council's internal audit function must be undertaken in accordance with the internal audit charter adopted by the council.
- Commencing 1 July 2024, councils' general managers must appoint a member of staff of the council to direct and coordinate internal audit activities for the council.
- Councils are not required to appoint a member of staff to direct and coordinate their internal audit activities if the council has entered into an agreement with other councils to share the internal audit function and one of the participating councils has appointed a member of staff to direct and coordinate internal audit activities on behalf of all the participating councils.
- A council's internal audit activities are to be undertaken under the oversight and direction of the council's audit, risk and improvement committee.
- The member of staff appointed by the general manager to direct and coordinate internal audit activities is to report to the audit, risk and improvement committee on those activities.
- The member of staff of a council appointed to direct and coordinate internal audit activities is not to be subject to direction in the performance of internal audit activities by anyone other than the audit, risk and improvement committee.
- All internal audit personnel must have direct and unrestricted access to council staff, the audit, risk and improvement committee and council information and resources necessary to undertake their role and responsibilities.
- The general manager must consult with the chair of the council's audit, risk and improvement committee on any decision affecting the employment of the staff member appointed to direct and coordinate the council's internal audit activities and must consider the chair's views before making the decision.

- The audit, risk and improvement committee must review the performance and efficacy of the council's internal audit activities once in each term of the council and report to the governing body of the council on the outcome of its review and make recommendations.

The requirements for internal audit in these Guidelines are detailed in core requirement 3.

Annual attestation

Commencing with the 2024-2025 annual report, general managers will be required under the Local Government Regulation to publish an attestation statement each year in the council's annual report indicating whether, during the preceding financial year, the council's audit, risk and improvement committee, risk management framework and internal audit function complied with these Guidelines.

The Local Government Regulation prescribes the following requirements in relation to attestation:

- Commencing with the 2024-2025 annual report, the general manager must cause to be published in the council's annual report an attestation statement in the form specified in these Guidelines on the council's compliance with the Guidelines with respect to the membership and operations of its audit, risk and improvement committee, its risk management framework and internal audit function.
- The general manager must consult with the chair of the council's audit, risk and improvement committee on the content of the attestation statement and must consider the chair's views when preparing the statement.
- If the committee chair disagrees with the content of the attestation statement prepared by the general manager, they may prepare their own attestation statement and submit this to the Departmental Chief Executive.

An attestation certificate template is provided at Appendix 1 and attestation requirements are highlighted with this symbol throughout these Guidelines.



The details of each member of the council's audit, risk and improvement committee must also be included in the attestation statement.

Attestation operates to ensure that the council takes independent assurance and risk management seriously and is accountable to the community for how it has implemented these requirements.

As noted above, the council's compliance status is to be self-assessed by the general manager, in consultation with the audit, risk and improvement committee.

The general manager must consider the views of the chair of the council's audit risk and improvement committee on the content of the attestation statement when preparing the statement.

If the chair disagrees with the content of the attestation statement prepared by the general manager, they may prepare their own report and submit this to the Departmental Chief Executive.

Exemptions

There may be times where a council may not be able to comply with all requirements relating to the audit, risk and improvement committee, risk management framework or internal audit function.

In these circumstances, the Local Government Regulation confers on the Departmental Chief Executive the power to exempt councils from compliance with a requirement under these Guidelines where the council or joint organisation requests such an exemption.

The Regulation provides that the Departmental Chief Executive may, on an application by a council, exempt the council from compliance with a requirement under these Guidelines for such a period specified by the Departmental Chief Executive where they are satisfied that:

- the council cannot comply with the requirement because of temporary extenuating circumstances or resourcing constraints that will significantly impact the council's budget,
- the council cannot enter into an agreement with another council to share the performance of activities necessary to satisfy the requirement, **and**
- current or proposed alternative arrangements will achieve outcomes equivalent to the requirement under these Guidelines.

A council's application to the Departmental Chief Executive for an exemption must be in the form and contain the information specified in these Guidelines.

The Regulation provides that where the Departmental Chief Executive exempts a council from compliance with a requirement under these Guidelines, the council must publish the Departmental Chief Executive's approval of the exemption in their annual report.

A council is not prevented from applying for a further exemption when a previous exemption expires.

Accountability

Councils that do not comply with these Guidelines and are not granted an exemption may face enforcement action under the Local Government Act.

Monitoring

Councils' compliance with the core requirements of the Local Government Act, Local Government Regulation and these Guidelines will be monitored by the Office of Local Government.

The NSW Auditor-General may also undertake an assurance role in monitoring councils' compliance. This may include conducting sector-wide performance audits, or compliance audits of individual councils and undertaking reviews of exemptions granted by the Departmental Chief Executive.

Core requirement 1:

Audit, risk and improvement committee

- Each council and joint organisation has an audit, risk and improvement committee that reviews the matters referred to in section 428A of the Local Government Act

Guiding principles for audit, risk and improvement committees

- ❖ The audit, risk and improvement committee is independent of the council.
- ❖ The committee is equipped with the relevant expertise and has access to the council resources and information necessary to fulfil its role and responsibilities effectively.
- ❖ Each council receives relevant and timely advice and assurance from the committee on the matters listed in section 428A of the Local Government Act.
- ❖ The work of the committee is thoroughly planned and executed, risk-based and linked to the council's strategic goals.
- ❖ The committee adds value to the council and is accountable to the governing body for its performance.
- ❖ The council is accountable to the community for complying with statutory requirements and these Guidelines relating to the committee.

Role and functions

Under section 428A of the Local Government Act, each council (including county councils and joint organisations) must have an audit, risk and improvement committee to independently review and advise on the following aspects of the council's operations:

- (a) compliance
- (b) risk management
- (c) fraud control
- (d) financial management
- (e) governance
- (f) implementation of the strategic plan, delivery program and strategies
- (g) service reviews

- (h) collection of performance measurement data by the council, and
- (i) any other matters prescribed by the regulation.

The committee must also provide information to the council for the purpose of improving the council's performance of its functions.

The Local Government Regulation (section #tbc) also requires a council's audit, risk and improvement committee to review and provide advice on the council's internal audit activities.

The audit, risk and improvement committee's role also extends to any entities established by or operated by the council.

The exact nature of each audit, risk and improvement committee's role and the specific activities it reviews on behalf of a council under section 428A of the Local Government Act will vary depending on the council's needs, risks and business functions.

These activities are to be agreed between the audit, risk and improvement committee and the council during the development of the committee's terms of reference. Suggested activities are provided in **Appendix 2**.

Level of assurance

Audit, risk and improvement committees are to have an advisory and assurance role only. They are to exercise no administrative functions, delegated financial responsibilities or any management functions for a council.

It is expected that each audit, risk and improvement committee will provide independent advice to the council that is informed by the council's internal audit and risk management activities and information and advice provided by council staff, relevant external bodies and other subject matter experts.

Terms of Reference

It is important that each audit, risk and improvement committee has clear guidance on how it should serve the council, and that the

council has input into how the committee will operate given its investment.

This will ensure clarity in the relationship between the council and the audit, risk and improvement committee, and that the council can measure the committee's performance.

The Local Government Regulation (section 428B) requires a council's audit, risk and improvement committee to operate according to terms of reference that are consistent with the approved Model Terms of Reference provided at Appendix 3.



The audit, risk and improvement committee's terms of reference can include additional provisions that are not inconsistent with the approved Model Terms of Reference or other requirements.

The terms of reference are to be approved by resolution of the governing body and reviewed annually by the audit, risk and improvement committee, and once each council term (i.e. four years) by the governing body.

Structure

Each council will have different audit, risk and improvement committee requirements depending on the council's size, needs, budget and the complexity of its operations.

For this reason, councils can either:

- establish an audit, risk and improvement committee for their exclusive use, or
- share their committee with another council, county council or joint organisation under section 428B of the Local Government Act.

When deciding the most appropriate way to structure a council's audit, risk and improvement committee, the council should consider the viability and capacity of a shared committee to achieve its terms of reference given the:

- size of the council in terms of both staffing levels and budget

- geographical and functional distribution of the council's operations
- complexity of the council's core business
- risk profile of the council
- expectations of stakeholders, and
- likely demands placed on the committee by other councils in the shared arrangement.

Shared committees

As noted above, under the Local Government Act (section 428B) councils can share an audit, risk and improvement committee. Councils can:

- share their committee with another council/s, county council/s and/or joint organisation/s as part of an independent shared arrangement
- utilise a committee established by their joint organisation that is shared with all member councils
- for county councils - share their committee with a member council where possible or another council
- for joint organisations - share their committee with a member council where possible or another council or joint organisation.

These options allow councils to establish and operate their audit, risk and improvement committee in a more cost-effective way.

For all shared audit, risk and improvement committees:

- the committee must operate as an individual committee for each council in any shared arrangement and exercise their functions for each council individually
- a shared committee should only be established and utilised by councils where the committee can maintain a strong understanding of each participating council's assurance needs and is able to meet these needs
- a shared committee should only be established and utilised by councils where the committee can maintain an effective working and reporting relationship with

- the general manager and governing body of each participating council
- councils that share their internal audit function can, but are not required to, also share their committee
- councils that share their committee can, but are not required to, also share the committee's secretariat, and
- councils should develop and sign a formal agreement with the other councils in the shared arrangement which outlines how the shared arrangement will operate and costs shared.

Where a joint organisation establishes an audit, risk and improvement committee to serve its member councils, it is at each member council's discretion whether they utilise the shared committee.

Shared councillor members

It is important to note that where an audit, risk and improvement committee is shared between councils as part of an independently established shared arrangement, or an arrangement established by a joint organisation, and the councils elect to have a councillor member on the committee, the councillor member will not be shared by councils.

To maintain the confidentiality of the business of each council in the shared arrangement considered by the shared committee:

- the governing body of each council is to appoint one councillor member to serve on the audit, risk and improvement committee for that council only
- the councillor member is to only attend committee meetings for their council, and
- the councillor member is to receive information pertaining to their council only.

For joint organisations, the elected councillor member will be a voting representative of the board.

Shared independent members

Unlike councillor members, the independent chair and members of shared audit, risk and improvement committees will serve all councils participating in the shared arrangement.

For audit, risk and improvement committees appointed as part of an independent shared arrangement, the councils in the shared arrangement are to mutually agree to the independent members that will be appointed to these roles, and each council is to confirm their appointment by resolution.

For audit, risk and improvement committees appointed as part of an arrangement established by a joint organisation by its member councils, the board of the joint organisation will appoint the chair and independent members of the committee by resolution on behalf of member councils under delegation from the member councils.

Size and composition

Each council, county council and joint organisation is required to have an audit, risk and improvement committee that is appropriate for the council's size, risk profile, operational complexity, resources, and its ability to attract suitably qualified committee members.

Each council is required to appoint an audit, risk and improvement committee that comprises of an independent chair and at least two independent members that meet the independence and eligibility criteria in these Guidelines.



At a minimum, audit risk and improvement committees **must** comprise of the following:

- **an independent chair** who meets the independence criteria **and** the eligibility criteria for committee chairs set out below, **and**
- **at least two independent members** who meet the independence criteria **and** the

eligibility criteria for independent committee members set out below

Councils also have the option of appointing one non-voting councillor member to their committee who meets the eligibility criteria for councillor members of committees set out below. The mayor cannot be appointed as a councillor member of a council's audit, risk and improvement committee.

The size and composition requirements of a committee are the same whether the committee is established by a council for its exclusive use or as part of a shared arrangement.

Councils can establish larger committees and appoint more committee members than the minimum required should they choose to do so but may only appoint one non-voting councillor member.

The governing body is to determine the exact size of the audit, risk and improvement committee in consultation with the chair of the committee and general manager, taking into account the needs and risk profile of the council, and likely workload of the committee.

County councils

Whilst a county council can establish an audit, risk and improvement committee for its own exclusive use, for administrative and cost efficiency, it is recommended that county councils utilise the committee of a member council/s under an independent shared arrangement (see above).

Joint organisations

Where a joint organisation has not established an audit, risk and improvement committee for its member councils as part of a joint organisation led shared arrangement, for administrative and cost efficiency, it is recommended that, where possible, a joint organisation utilise a committee established by one of its member councils as part of an independent shared arrangement (see above).

To ensure the audit, risk and improvement committee has an understanding of the interrelationships and needs of the joint

organisation and its member councils, and of wider regional priorities, ideally joint organisations should enter into an independent shared arrangement with a member council/s. If this is not possible, it is open to joint organisations to enter into a shared arrangement with another joint organisation or a council from outside of its area.

Roles of committee members

Chair

The position of the chair of an audit, risk and improvement committee is pivotal to the committee's effectiveness and is the focal point for the committee's relationship with the council, the internal audit function and external auditor.

The chair acts as the interface between the audit, risk and improvement committee and the general manager and other staff, the governing body, the external auditor, and the internal audit function.

Any individual audit, risk and improvement committee member who wishes to meet with the general manager or governing body of the council to discuss any issues relating to the committee's responsibilities is to do so through the chair of the committee, and vice versa.

To be successful in their role, a chair must:

- have strong leadership qualities
- have the personal courage to raise and deal with tough issues and express opinions frankly, and to support other committee members to do the same
- be able to recommend the appointment of committee members to the governing body
- maintain effective working relationships between committee members and with the council
- keep the governing body and general manager informed and brief them on the

- strategic and technical aspects of internal audits and risk and control issues
- lead effective committee meetings including:
 - planning for and setting agendas for meetings, ensuring committee members are adequately informed of matters to be considered prior to meetings and allowing sufficient time for discussion of those matters at the meeting
 - ensuring the meeting runs smoothly and that the views of members are heard
 - focus the committee's deliberations on the most important issues
 - seek the input of advisers, observers and other experts to maximise committee deliberations
 - summarise discussion outcomes and actions, including assigning responsibility and timeframes for actions
- maintain an effective working relationship with the council's external auditor
- oversee the internal audit function and be alert to external accountability and internal audit concerns
- arrange for all committee members to maintain an up-to-date knowledge of the council and its activities, including any financial or regulatory developments, and
- know the strengths and weaknesses of the committee, and individual committee members and how this may affect the opinions of the committee.

Independent members

Independent audit, risk and improvement committee members are expected to be able to assess information provided to them about the council and to identify and assess key risks and issues.

Each member should be capable of making a valuable contribution to the committee.

To be successful in their role, a member must:

- take a professional approach to their responsibilities, including an appropriate commitment of time and effort

- know the business, culture and values of the council and take the time to understand changes that affect how the council operates and its risks
- have sufficient understanding of the council's financial reporting responsibilities to be able to contribute to the committee's consideration of the annual financial statements
- understand the role of the committee and the expectations of the council
- act in the best interests of the council
- take a professional approach
- be a good communicator and build effective relationships with the council and other committee members, and
- have the personal courage to raise and deal with tough issues, express opinions frankly, ask questions that go to the fundamental core of the issue and pursue independent lines of inquiry.

Councillor members

Councillor members of audit, risk and improvement committees are non-voting members of committees. This is to ensure that decision making by the committee is independent of the council.

Councillor members of committees act as an important link between the governing body and the committee.

Their role is to:

- relay to the committee any concerns the governing body may have regarding the council and issues being considered by the committee
- provide insights into local issues and the strategic priorities of the council that would add value to the committee's consideration of agenda items
- advise the governing body (as necessary) of the work of the committee and any issues arising from it, and
- assist the governing body to review the performance of the committee each council term.

Issues or information councillors members raise with or provide the audit, risk and improvement committee must relate to the

matters listed in section 428A of the Local Government Act, the committee's terms of reference and issues being considered by the committee.

Councillor members of audit, risk and improvement committees are not entitled to receive information about audit, risk and improvement committee activities outside of established reporting requirements.

Councillor members of audit, risk and improvement committees must conduct themselves in a non-partisan and professional manner.

Councillor members of committees must not engage in any conduct that seeks to politicise the activities of the committee or the internal audit function or that could be seen to do so.

Where a councillor member of an audit, risk and improvement committees engages in such conduct or in any other conduct that may bring the committee and its work into disrepute, the chair may recommend to the council, that the councillor member be removed from membership of the committee.

Where the council does not agree to the chair's recommendation, it must give reasons for its decision in writing to the chair.

Independence criteria for committee chairs and independent members

The chair and all independent voting members of audit, risk and improvement committees must be independent to ensure they have no real or perceived bias or conflicts of interest that may interfere with their ability to act independently and can provide the council with robust, objective and unbiased advice about how the council is functioning.

Each council must ensure that the chair and independent members of the council's audit, risk and improvement



committee meet the following independence criteria.

The chair and independent voting committee members **must not**:

- currently be a councillor of any NSW council
- be a non-voting representative of the board of the joint organisation
- be a candidate at the last election of the council
- be a person who has held office in the council during its previous term
- be currently employed by the council or joint organisation, or been employed during the last 12 months
- conduct audits of the council on behalf of the Audit Office of NSW
- have a close personal or business relationship with a councillor or a person who has a senior role in the council that may lead to a real or perceived conflict of interest
- currently, or within the last three years, provided any material goods or services (including consultancy, legal, internal audit and advisory services) to the council which directly affect subjects or issues considered by the audit, risk and improvement committee
- be (or have a close family member who is) a substantial shareholder, owner, officer or employee of a company that has a material business, contractual relationship, direct financial interest or material indirect financial interest with the council or a related entity which could be considered a real or perceived conflict of interest, or
- currently or have previously acted as an advocate of a material interest on behalf of the council or a related entity which could be considered a real or perceived conflict of interest.

Current staff of councils may serve as an independent member of another council's audit, risk and improvement committee but not as its chair. Current council staff may only serve on another council's audit, risk and improvement committee if they meet the independence and eligibility criteria for membership of the committee and their

employer is not participating in a shared arrangement with the other council in relation to the audit, risk and improvement committee or the internal audit function.

General managers will require the approval of their council under section 353 of the Local Government Act before they can serve as an independent member of another council's audit, risk and improvement committee. Other council staff will require the approval of their general manager.

Both the governing body of the council and the general manager must ensure that adequate procedures are in place to preserve the independence of the chair and members of the audit, risk and improvement committee.

Likewise, the chair and members must notify the governing body and/or general manager if a real or perceived threat to their independence arises.

Eligibility criteria for committee chairs and members

The persons appointed as a chair or a member of an audit, risk and improvement committee must possess the skills, knowledge and experience necessary to undertake their roles on the committee effectively and to ensure the committee can operate appropriately and effectively to support the council.

A poorly skilled audit, risk and improvement committee may not be able to provide the assurance needed by the council and may lead to sub-optimal outcomes that jeopardise the council's capacity to achieve its strategic objectives.

The following eligibility criteria for audit, risk and improvement committee chairs and members reflect the minimum standards persons must meet to be appointed as the chair or member of a council's audit, risk and improvement committee. Councils may require audit, risk and improvement committee chairs

and members to satisfy more onerous eligibility criteria if they choose to do so.

Councils must ensure that the chair and other members of the council's audit, risk and improvement committee meet the below minimum eligibility criteria.



Eligibility criteria for committee chairs

In addition to meeting the independence requirements specified above, the chair of an audit, risk and improvement committee must satisfy the following minimum eligibility criteria to be appointed as a chair. Ideally, they will also be able to demonstrate the desirable criteria.

Essential criteria

Audit, risk and improvement committee chairs must demonstrate the following:

- leadership qualities and the ability to promote effective working relationships in complex organisations
- an ability to communicate complex and sensitive assessments in a tactful manner to the head of the council's internal audit function, senior management and the mayor and councillors
- a sound understanding of:
 - the principles of good organisational governance and capacity to understand local government accountability, including financial reporting
 - the business of the council or the environment in which it operates
 - internal audit operations, including selection and review of the head of the council's internal audit function, and
 - risk management principles
- extensive senior level experience in governance and management of complex organisations, an ability to read and understand financial statements and a capacity to understand the ethical requirements of government (including potential conflicts of interest)

- functional knowledge in areas such as risk management, performance management, human resources management, internal and external auditing, financial reporting, accounting, management control frameworks, internal financial controls, governance (including planning, reporting and oversight), or business operations
- a capacity to form independent judgements and a willingness to constructively challenge/question management practices and information, and
- a professional, ethical approach to the exercise of their duties and the capacity to devote the necessary time and effort to the responsibilities of the chair of an audit, risk and improvement committee.

Desirable criteria

Possession of a relevant professional qualification or membership (e.g., Institute of Internal Auditors (IIA), CPA Australia (CPA) and Chartered Accountants Australia and New Zealand (CA)) is desirable.

Eligibility criteria for independent committee members

In addition to meeting the independence requirements specified above, independent members of an audit, risk and improvement committee must satisfy the following eligibility criteria to be appointed as an independent committee member. Ideally, they will also be able to demonstrate the desirable criteria.

Essential criteria

Independent members of audit, risk and improvement committee members must demonstrate the following:

- an ability to read and understand financial statements and a capacity to understand the ethical requirements of government (including potential conflicts of interest)
- functional knowledge in areas such as risk management, performance management, human resources management, internal

and external auditing, financial reporting, accounting, management control frameworks, internal financial controls, governance (including planning, reporting and oversight), or business operations

- a capacity to form independent judgements and willingness to constructively challenge/question management practices and information
- a professional, ethical approach to the exercise of their duties and the capacity to devote the necessary time and effort to the responsibilities of an independent member of an audit, risk and improvement committee, and
- preparedness to undertake any training on the operation of audit, risk and improvement committees recommended by the chair based on their assessment of the skills, knowledge and experience of the independent member.

Desirable criteria

Ideally, independent members of audit, risk and improvement committees should also meet the following criteria, but these are not essential:

- extensive senior level experience in governance and management of complex organisations, and
- possession of a relevant professional qualification or membership (e.g., Institute of Internal Auditors (IIA), CPA Australia (CPA) and Chartered Accountants Australia and New Zealand (CA)).

Criminal record and financial status checks

Councils must undertake a criminal record and a financial status (bankruptcy) check of audit, risk and improvement committee chairs and independent members before their appointment.

Audit, risk and improvement committee chairs and independent members must not be undischarged bankrupts or have been charged with or convicted of a serious criminal offence.

Eligibility criteria for councillor members

To be appointed as a non-voting audit, risk and improvement committee member a councillor must demonstrate the following:

- an ability to read and understand financial statements and a capacity to understand the ethical requirements of government (including potential conflicts of interest)
- a good understanding of one or more of the following: risk management, performance management, human resources management, internal and external auditing, financial reporting, accounting, management control frameworks, internal financial controls, governance (including planning, reporting and oversight), or business operations
- a capacity to form independent judgements and willingness to constructively challenge/question management practices and information
- a professional, ethical approach to the exercise of their duties and the capacity to devote the necessary time and effort to the responsibilities of a councillor member of an audit, risk and improvement committee, and
- preparedness to undertake any training on the operation of audit, risk and improvement committees recommended by the chair based on their assessment of the skills, knowledge and experience of the councillor member.

The mayor cannot be appointed as a councillor member of a council's audit, risk and improvement committee.

Appointment

Audit, risk and improvement committee chairs and members are appointed by a resolution of the governing body of the council.

The governing body should first appoint the chair of the audit, risk and improvement committee, who is to then assist in the

selection and appointment of the other independent committee members.

Skills mix

When selecting individual audit, risk and improvement committee members, the council should ensure the committee has the appropriate mix of skills, knowledge and experience necessary to successfully implement its terms of reference and add value to the council.

The audit, risk and improvement committee should have:

- at least one member with financial expertise (for example, a qualified accountant or auditor or other financial professional with experience of financial and accounting matters), and
- a mix of skills and experience in:
 - business
 - financial and legal compliance
 - risk management, and
 - internal audit, and
 - any specialised business operations of the council, where the committee would benefit from having a member with skills or experience in this area (for example, IT skills or experience where IT systems have an important role in the council's business).

All audit, risk and improvement committee members should have sufficient understanding of the council's financial reporting responsibilities to be able to contribute to the committee's consideration of the annual financial statements.

Each committee member should also have sufficient time to devote to their responsibilities as an audit, risk and improvement committee member.

Where possible, the governing body should ensure that at least one other audit, risk and improvement committee member is also qualified to act as the chair if this is ever required.

Letter of appointment

The appointment of chairs and members of audit, risk and improvement committees should be formalised in an official letter of appointment signed by the mayor of the council.

The letter of appointment should set out the terms and conditions of the appointment including:

- duration of appointment
- role and responsibilities
- timing and location of meetings
- time commitment
- remuneration
- the management of conflicts of interest
- confidentiality
- performance appraisal, and
- termination of appointment.

Induction

Induction of all new audit, risk and improvement committee members is vital to ensure they 'hit the ground running' in their role.

The chair is to provide a thorough induction to each new member of the audit, risk and improvement committee to ensure they understand:

- the committee's role, responsibilities and terms of reference
- the business, operations, culture, risks and controls of the council, and
- the expectations of the council about their responsibilities and performance.

This will include providing new members with any background information or documentation necessary to ensure they understand the work of the audit, risk and improvement committee.

It may also be appropriate for more detailed information or presentations to be provided from various senior staff to assist the new member to understand the operations of the council and any key challenges.

New audit, risk and improvement committee members also have an obligation to ensure

that they have an appropriate understanding of the council, including its:

- operations, functions, service delivery
- key areas of risk
- internal controls, and
- financial reporting systems.

The mayor, general manager and existing chair (where appropriate) will induct a new chair.

Membership terms

Voting members

To ensure the audit, risk and improvement committee continues to offer new perspectives and remains independent, it is important that committee members are rotated periodically to maintain a fresh approach and avoid any perceptions of bias or conflicts of interest.

Councils are to ensure that chairs and members serve the following time-limited terms to facilitate a rotation of knowledge and perspectives.



The initial term of membership on an audit, risk and improvement committee is four-years.

Audit, risk and improvement committee members can be reappointed for up to one further term but the total period of continuous membership on the committee cannot exceed eight years (two terms). This includes any term as chair of the committee.

Chairs or members who have served an eight-year term must have a two-year break from serving on the same council's audit, risk and improvement committee before being eligible to be appointed to that council's committee again.

Care is to be taken to ensure that membership renewal dates are staggered so knowledge of the council's operations, financial reporting structure and other important aspects are not lost to the audit, risk and improvement committee when members change.

Ideally, no more than one member should leave the committee because of rotation in any one year.

Exemptions

If a council is unable to replace the chair or members of its audit, risk and improvement committee when their maximum term limit has been reached, the council can seek the approval of the Departmental Chief Executive to extend their term or to reappoint the chair or committee member for a further term.

The council's request must:

- be in writing
- describe the efforts the council has made to appoint a different member, and
- explain why the council has been unsuccessful.

Exemptions will only be granted in exceptional circumstances.

Chair

To ensure that the committee maintains a fresh approach, the initial term of a chair of an audit, risk and improvement committee on any one audit, risk and improvement committee is four-years (one term).

The chair can be reappointed as chair for up to one further term, but the total period served by a chair on the same committee cannot exceed eight years (two terms).

Where the chair's term expires and another chair is appointed, it is the responsibility of the outgoing chair to ensure the incoming chair is fully briefed on the ongoing work of the audit, risk and improvement committee.

This includes advising the incoming chair of:

- any activity that may be relevant to the ongoing functioning of the committee, and
- any outstanding matters of high risk to the council and outstanding audit recommendations.

Councillor members

The initial term of a councillor member of an audit, risk and improvement committee is four years, coinciding with the term of the council.

The councillor member can be reappointed for another term (i.e. four-years), if re-elected at the council's next ordinary election, but the total period of continuous membership on the committee cannot exceed eight years (two council terms).

The councillor member is to be appointed by the governing body at the first meeting of the council after the ordinary election.

The councillor member's term ends at the end of the council term.

Reappointment

Prior to approving the reappointment or extension of the chair or an independent member's term, the governing body of the council must undertake an assessment of the chair's or committee member's performance.

The council may engage an external reviewer to undertake this assessment if they choose.

In undertaking the assessment, the council, or any person appointed to undertake the assessment on behalf of the council, must consult with and consider the views of the chair (in the case of the reappointment or extension of the term of a committee member other than the chair), the general manager and any councillor member of the committee.

The council, or any person appointed to undertake the assessment on behalf of the council, should also consider whether the person's skills, knowledge and experience align with the council's requirements, as set out in the committee's terms of reference and four-year strategic work plan (see below), to ensure that they continue to add value to the committee.

The reappointment of the chair or a committee member is also subject to that person still meeting independence and eligibility requirements.

Resignation of committee members

Where the chair or a member of an audit, risk and improvement committee is unable to complete their term or does not intend to seek reappointment after the expiry of their term, they should give sufficient notice to the chair (in the case of a committee member) and the governing body (in the case of the chair) prior to their resignation to enable the council to ensure a smooth transition to a new committee member or chair.

The notice period is to be agreed by the governing body of the council and the committee.

A member of an audit, risk and improvement committee should have the opportunity to have an exit meeting with the chair to discuss their reason for leaving and to provide feedback on their experience serving on the committee as well as any other issues.

Resigning chairs should have the opportunity to have an exit meeting with the mayor and general manager (if appropriate).

Dismissal of committee members

The governing body of a council can terminate the appointment of the chair and any member of the audit, risk and improvement committee by resolution before the expiry of their terms under certain circumstances.

The dismissal of the chair or an independent member of a committee is to be reported to the Office of Local Government.

Dismissal criteria

The chair or an independent member of the audit, risk and improvement committee can be dismissed by the governing body before the expiry of their term where they have:

- breached the council's code of conduct

- performed unsatisfactorily or not to expectations
- declared, or are found to be in, a position of a conflict of interest with is unresolvable
- been declared bankrupt or are found to be insolvent
- experienced an adverse change in business status
- been charged with a serious criminal offence
- been proven to be in serious breach of their obligations under any legislation, or
- experienced an adverse change in capacity or capability.

Councillor members

The appointment of a councillor member to an audit, risk and improvement committee can be terminated at any time by the governing body by resolution.

Fees

The fees a council pays to the chair and independent members of its audit, risk and improvement committee are to be agreed between the council and the chair or member and reflect the time, commitment and responsibility involved in serving on the committee.

Chairs and members can serve on a committee on a voluntary basis if they choose to.

Superannuation

Councils are obliged under the *Superannuation Guarantee (Administration) Act 1992* to make compulsory superannuation guarantee contributions on behalf of audit, risk and improvement committee chairs and independent members where they are remunerated.

Insurance

Councils should determine whether professional indemnity and public liability

insurance is required for the chair and independent members of their audit, risk and improvement committee.

In some cases, the chair or a member of an audit, risk and improvement committee may already be covered by the council's professional indemnity and public liability insurance policies or by their own insurance.

This will need to be ascertained by the council and chair or member on a case-by-case basis having regard to the terms of any relevant insurance policy.

Where a council determines that professional indemnity or public liability insurance may be required, the chair or member can obtain their own insurance, or the council can consider obtaining it on their behalf.

Learning and development

Audit, risk and improvement committee chairs and members are encouraged to keep informed of current developments and to maintain and develop the skills, knowledge and capabilities necessary to exercise their functions effectively.

Several professional development networks and programs are available, for example, through organisations such as:

- the Institute of Internal Auditors
- the Australian Institute of Company Directors
- Chartered Accountants Australia and New Zealand
- The Actuaries Institute, and the
- Local Government Professionals Association.

Audit, risk and improvement chairs and members are also encouraged to serve on more than one local government committee to extend the breadth of their experience and understanding of councils and their operations and risks.

Conduct

Audit, risk and improvement committee members are required to observe the same ethical and behavioural standards as other council officials and must comply with the council's code of conduct.

As required under the council's code of conduct, audit, risk and improvement committee members must declare and appropriately manage any conflicts of interest they may have in matters being dealt with by the committee.

Declarations of conflicts of interest and the actions taken to manage them must be recorded in the minutes of meetings.

Councils should identify the chair and independent members of their audit risk and improvement committee as 'designated persons' for the purposes of the council's code of conduct and require them to complete and submit returns of interests.

Complaints of breaches of the council's code of conduct by audit, risk and improvement committee members are to be dealt with in accordance with the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*.

Under the Procedures, the general manager is responsible for managing code of conduct complaints about the chair and independent members of the audit, risk and improvement committee. However, as a safeguard, the general manager should consult with the governing body of the council before taking disciplinary action under the Procedures against the chair or an independent member of the council's audit, risk and improvement committee.

Meetings

The audit, risk and improvement committee must meet at least quarterly over the course of each year.

The chair of the audit, risk and improvement committee is to decide the frequency and

timing of the committee's meetings and plan them annually in advance to ensure the availability of all members and observers.

Generally, meetings should correspond with major phases of the council's financial reporting, external audit and internal audit cycles.

For example, the audit, risk and improvement committee should meet to review the council's financial statements before they are certified by the council.

Audit, risk and improvement committee meetings should also correspond with meetings of the governing body, and allow sufficient time between audit, risk and improvement committee meetings and council meetings for the committee to action any items and prepare any reports that are to be provided to the governing body at the council meeting.

Special meetings may be held, if needed, to review the council's financial statements prior to them being submitted to the governing body of the council, or to consider the audit, risk and improvement committee's annual or four-yearly assessments (see below).

Audit, risk and improvement committee meetings can be held in person, by telephone or videoconference.

The audit, risk and improvement committee can hold additional meetings when significant unexpected issues arise, or if the chair is asked to hold an additional meeting by a committee member or the general manager.

The governing body can also resolve to request the audit, risk and improvement committee to hold an additional meeting.

Where such a request is made, the chair can decide whether the additional meeting is required, taking into consideration the issues that the governing body has requested the audit, risk and improvement committee to consider at the meeting.

Proxies

As audit, risk and improvement committee members are appointed on the basis of their

skills, knowledge and personal qualities, proxies are not permitted to attend meetings on behalf of members who are unable to attend.

Quorum and voting

A quorum consists of a majority of audit, risk and improvement committee independent voting members.

Where the vote is tied, the chair has the casting vote.

Agenda

Forward agenda

The chair should prepare a 12-month forward meeting agenda to ensure that the audit, risk and improvement committee covers all its responsibilities at the appropriate time of the year.

For example, the forward agenda will set out, at the appropriate meeting, the various internal and external audit reports and management responses to be tabled and discussed.

It will also allocate appropriate time for a review of the progress of the internal audit function against the annual work plan, and to follow-up the implementation of corrective actions.

Meeting agenda

The chair of the audit, risk and improvement committee is to determine the agenda for each committee meeting.

It is recommended that the chair consult with other committee members, the general manager, the head of the internal audit function and external auditor prior to setting the agenda so that any urgent issues or risks that arise can be included.

The chair of the audit, risk and improvement committee is to decide an appropriate timeframe for receiving the final agenda in the lead-up to the meeting.

Papers

The audit, risk and improvement committee is to decide in consultation with the general manager and the head of the internal audit function an appropriate timeframe for receiving papers and other necessary information to support agenda items to be considered at each committee meeting.

Minutes

Each audit, risk and improvement committee meeting must be minuted to preserve a record of the issues considered and the actions and decisions taken by the committee.

Audit, risk and improvement committee meeting minutes must:

- include a record of attendance
- cover each agenda item and document the discussion held and the outcome of discussions, including any recommendations, action points and/or allocation of tasks to relevant people
- be approved by the chair before circulation
- be provided to committee members, the governing body of the council, the general manager, the head of the internal audit function and external auditor
- be provided soon after the meeting date to ensure relevant persons are made aware of any significant issues discussed at the meeting that need to be dealt with. The exact time period is to be determined by the committee and the general manager.

The minutes must be confirmed as an accurate record of the meeting at the next meeting of the audit, risk and improvement committee.

If any important details have been incorrectly recorded or omitted, they can be discussed and the minutes amended, prior to confirmation at a subsequent meeting.

After the minutes are confirmed as an accurate record of the meeting, they must be signed by the chair.

All audit, risk and improvement committee members and observers should receive a copy of the minutes of all meetings.

Attendance of observers

Due to the potentially sensitive nature of the issues to be discussed, audit, risk and improvement committee meetings should not be open to the public.

In addition to audit, risk and improvement committee members, the general manager and the head of the internal audit function should attend committee meetings as non-voting observers.

The NSW Auditor-General, as council's external auditor, or their representative, is to be invited to each committee meeting as an independent non-voting observer and can choose whether to attend.

The chair of the audit, risk and improvement committee can request the following people to attend a committee meeting or to meet with the committee to provide additional information relevant to its role:

- council's chief financial officer (or equivalent) given their knowledge of, and responsibility for, council's financial management
- the head of the council's risk management function
- senior managers
- any councillor
- any employee or contractor of the council (with the general manager's permission), and/or
- any external independent expert or external party whose advice is needed (subject to confidentiality considerations).

These persons must attend meetings where requested and must, as far as is practicable, provide the information requested.

Observers have no voting rights at audit, risk and improvement committee meetings and can be excluded from a meeting by the chair of the committee at any time where necessary.

Private meetings

The audit, risk and improvement committee can hold closed meetings whenever it needs to discuss confidential or sensitive issues with

only voting members of the committee present.

In addition to attending audit, risk and improvement committee meetings, the committee can meet privately at any time with the head of the internal audit function and/or external auditor without the general manager present. At least one private meeting must occur annually.

Confidentiality

It is at the discretion of the council to decide whether audit, risk and improvement committee agendas, business papers, minutes and other reports are made publicly available.

Given its potential sensitivity, it is recommended that all information pertaining to the audit, risk and improvement committee and internal audit activities is treated as confidential unless otherwise determined by the committee or a resolution of the council.

Councils and audit, risk and improvement committees should also consider the guiding principles of the *Government Information (Public Access) Act 2009* and whether it is in the public interest to proactively disclose or release information and whether there is an overriding public interest against doing so.

Secretariat

The general manager is to appoint a council staff member to provide secretariat support to the audit, risk and improvement committee.

The main functions of this role are:

- liaising with the chair to prepare agendas for audit, risk and improvement committee meetings
- ensure that committee papers are of an appropriate standard and provided with enough time to allow appropriate review and consideration
- recording minutes of meetings
- providing assistance to the chair in arranging meetings and council site visits

- supporting the chair to prepare reports for the council
- arranging appropriate meeting facilities and equipment
- keeping members informed of developments affecting the council that may relate to the work of the committee
- maintaining a record of when member's terms of appointment are due for renewal or termination
- ensuring new members receive appropriate induction, and
- managing expenditures relating to the committee.

Shared arrangements

If the audit, risk and improvement committee has been established by a joint organisation, the executive officer of the joint organisation is responsible for organising secretariat support.

Councils that share their audit, risk and improvement committee can also share their secretariat function if they choose to.

Key relationships

General manager

A key role of audit, risk and improvement committees is to act as an independent source of advice and opinion to both the governing body and the general manager, and to act as a forum for the resolution of any disagreements between the council and internal audit function.

The general manager, in turn, also has a key role in supporting the work and effectiveness of the audit, risk and improvement committee.

To be effective, audit, risk and improvement committees need to maintain a positive working relationship with the general manager (and vice versa) and view them as a valuable source of advice and information about the council and its operations.

Chairs of audit, risk and improvement committees should meet regularly with general

managers to discuss key issues and review performance.

External audit

There are strong linkages between the work of councils' audit, risk and improvement committees and their external auditor and committees should actively engage with the external auditor.

Councils' external auditor can offer valuable insights on issues such as the effectiveness of the council's risk, controls, financial reporting, and compliance frameworks.

For the external auditor, communication with the audit, risk and improvement committee can in turn facilitate an effective and efficient audit and assist the communication of matters arising from the external audit to the council.

Audit, risk and improvement committees should:

- provide input on, and discuss, planned financial and performance audit coverage
- monitor councils' responses to financial statement management letters and performance audit reports, including the implementation of audit recommendations
- provide advice to the council on action taken on significant issues raised in relevant external auditor reports or better practice guides, and
- have a voting-members only meeting with the external auditor at least once per year so that the committee can obtain the views of the external auditor without internal audit or management advisers being present.

Internal audit

The audit, risk and improvement committee should maintain a strong, positive relationship with the council's internal audit function and view it as a significant source of information about what is going on in the council.

The internal audit function can also assist the audit, risk and improvement committee to develop the annual work plan and four-year strategic work plan that will guide the

committee's and internal audit function's work (see below).

The chair of the audit, risk and improvement committee should routinely meet with council staff undertaking internal audit activities to discuss key issues and review performance if needed.

At least one private meeting should be held each year and any potential compromises to the internal audit activity's independence reported.

More information about this is provided in core requirement 3.

Access to council, staff, resources and information

It is essential for the audit, risk and improvement committee to be able to access the staff and information about the council it needs to review the matters listed in section 428A of the Local Government Act and the resources necessary to undertake its other responsibilities.

Council staff

A council's audit, risk and improvement committee must have direct and unrestricted access to the general manager and senior management of the council in order to fulfil its responsibilities.



Should the audit, risk and improvement committee need to meet with another council staff member or contractor to obtain information to undertake its role, the chair of the committee is to obtain permission from the general manager before inviting the staff member or contractor to meet with the committee.

Subject to the general manager's permission being given, the staff member or contractor must attend.

Any disputes between the general manager and audit, risk and improvement committee regarding access to council staff are to be resolved by the governing body.

Council resources and information

A council's audit, risk and improvement committee must have direct and unrestricted access to any council resources or information it needs to fulfil its responsibilities.



In its dealings with the council, the audit, risk and improvement committee should be mindful of the environment the council is operating in and the priorities that the general manager needs to manage.

The audit, risk and improvement committee should therefore keep to a minimum the demands it places on the council and utilise as far as is practicable, existing information to obtain the necessary level of assurance in relation to its responsibilities.

The audit, risk and improvement committee may only release council information to external parties that are assisting the committee to fulfil its responsibilities with the approval of the general manager, except when it is being provided to an external investigative, audit or oversight agency for the purpose of informing that agency of a matter that may warrant its attention.

After their engagement ends with a council, a chair or member of an audit, risk and improvement committee must not disclose or make use of any confidential information acquired in the course of their engagement with the council without the approval of the council.

External advice

The audit, risk and improvement committee can obtain any external legal or other professional/expert advice it needs to exercise its responsibilities. For example, where a council has implemented a specialised IT system, the committee can seek the expert

opinion of an IT specialist to assist its review of its implementation.

To minimise the potential costs to the council, the governing body and the chair of the audit, risk and improvement committee must agree at the start of each council term how costs are to be met, i.e.:

- the governing body will set a fixed budget at the start of each council term for external expenses, or
- the committee will seek the governing body's permission prior to engaging external advice.

Disputes

Members of an audit, risk and improvement committee should maintain an effective working relationship with each other and the council and try to resolve any differences they may have professionally.

In the event of a disagreement between the audit, risk and improvement committee and the general manager or other senior managers (for example, about findings or recommendations of audits), the dispute is to be resolved by the governing body of the council.

Unresolved disputes regarding compliance with these Guidelines are to be referred to the Departmental Chief Executive in writing.

Workplans

Strategic work plan

It is essential that the work of the audit, risk and improvement committee is thoroughly planned and executed to ensure that no council activity or function is missed by the committee and that councils receive value for money from their assurance investment.

A council's audit, risk and improvement committee must develop a strategic work plan every four years to ensure that



all the matters listed in section 428A of the Local Government Act are reviewed by the committee and considered by the internal audit function when developing their risk-based program of internal audits.

The plan must be developed by the audit, risk and improvement committee in consultation with the governing body, general manager, the head of the internal audit function and senior managers (where appropriate) and adopted by the governing body of the council at the start of the council term.

To maintain the independence of the audit, risk and improvement committee, the governing body of the council must be careful when adopting the strategic work plan not to direct the committee's work over the council term.

Content

The nature of the strategic work plan will be commensurate with the size and operational complexity of the council and its risk profile, and consistent with the requirements of the International Professional Practices Framework.

At a minimum, it should document:

- the goals and expected outcomes of the audit, risk and improvement committee for the council term
- key organisational issues and risks faced by the council and how the committee will review these, and
- key performance indicators to measure progress across the council term.

When developing the council's strategic work plan, the audit, risk and improvement committee should consider at a minimum:

- the council's strategic objectives
- risks facing the council
- the work of other review activities or functions (for example, external and performance audits, and reviews or audits by other government agencies)
- an assurance map of the council's assurance activities which may assist to determine where the committee's and internal audit function's work should focus, and
- stakeholder expectations.

There should also be sufficient flexibility in the strategic work plan to accommodate the need for additional audits on emerging risks from time to time.

The audit, risk and improvement committee may, in consultation with the council's governing body, vary the strategic work plan at any time to address new or emerging risks.

The governing body of the council may also, by resolution, request the committee to approve a variation to the strategic work plan. However, any decision to vary the strategic work plan will rest with the committee.

When considering whether to vary the strategic work plan, the committee must consider the impact of the variation on the internal audit function's existing workload and the completion of pre-existing priorities and activities identified under the strategic work plan.

Review

The audit, risk and improvement committee must review the four-year strategic plan at least annually to ensure that it is dynamic, relevant and aligns with the council's risk profile.

This will also ensure that the council remains on track with its audits and any delay in progress can be quickly addressed.

Annual work plan

A council's audit, risk and improvement committee must develop an annual work plan to guide its work over the forward year.



The annual work plan must be developed by the audit, risk and improvement committee in consultation with the governing body, general manager, head of the internal audit function and senior managers (where appropriate).

The annual work plan must be consistent with the requirements of the International Professional Practices Framework and identify:

- the internal audits that will be carried out during the year to support the work of the audit, risk and improvement committee

- the key goals, objectives and scope of the proposed audits
- the resources needed for each audit (for example, staffing, budget, technology), and
- key performance indicators to measure annual progress against.

The annual work plan must be flexible enough to allow it to be reviewed and adjusted as necessary throughout the year in response to any changes to the council's risks or operations.

The audit, risk and improvement committee may, in consultation with the council's governing body vary the annual work plan to address new or emerging risks.

The governing body of the council may also, by resolution, request the committee to approve a variation to the annual work plan. However, any decision to vary the annual work plan will rest with the committee.

When considering whether to vary the annual work plan, the committee must consider the impact of the variation on the internal audit function's existing workload and the completion of pre-existing priorities and activities identified under the annual work plan.

Performance measurement

The performance of each council's audit, risk and improvement committee and internal audit function must be able to be assessed to measure progress and improvement.

The audit, risk and improvement committee must establish key performance indicators for the council's four-year strategic work plan and annual work plan to allow the council to gauge the:

- performance of the committee and internal audit function and the value they are providing to the council, and
- council's performance regarding the matters listed in s428A so that the council can assess whether it is improving each council term in these areas.

These key performance indicators are to be reviewed and refreshed by the audit, risk and improvement committee for each annual work plan and four-year strategic work plan to

ensure they reflect the changing needs of the council and the increased capacity of the committee and internal audit function as they mature.

The general manager, in consultation with the audit, risk and improvement committee, must ensure that a data collection or performance management system is established and maintained to collect the data needed to measure progress against these key performance indicators.

Providing advice to the governing body

Quarterly updates

Ongoing reporting by the audit, risk and improvement committee to the governing body (and general manager) is essential for accountability and will ensure that the governing body is kept informed of matters considered by the committee and any emerging issues that may influence the strategic direction of the council or the achievement of the council's goals and objectives.

It will also ensure strong linkages between the audit, risk and improvement committee, the governing body and the general manager and lead to a better functioning assurance mechanism.

The audit, risk and improvement committee must provide an update to the governing body of the council of its activities and opinions after every committee meeting.

The audit, risk and improvement committee must also provide its quarterly update to the general manager to ensure they are kept informed of issues raised and can answer any questions the governing body may have about the committee's opinions and recommendations.

The mayor can request to meet with the chair of the audit, risk and improvement committee at any time to discuss any issues relating to the work of the committee during the quarter.

The chair of the audit, risk and improvement committee can also request to meet with the mayor at any time.

Content

The nature and content of the audit, risk and improvement committee's quarterly updates is to be determined by the governing body and the committee.

It could simply be providing a copy of the audit, risk and improvement committee's meeting minutes to the governing body if appropriate, or something more formal such as a report for noting by the governing body, or a face-to-face meeting between the committee, governing body and general manager to discuss important issues that have been identified.

Whatever the nature and form the update takes, the governing body and general manager must be advised, at a minimum, of:

- any formal resolutions of the audit, risk and improvement committee
- the committee's assessment of any audits conducted, including any breaches or deficiencies in controls that require an immediate response from the council
- progress on the implementation of corrective actions
- opportunities for longer-term improvement, and
- any key opinions or 'take-outs' from the committee's meeting.

Should the governing body require additional information, a request for the information may be made to the chair by resolution. The chair is only required to provide the information requested by the governing body where the chair is satisfied that it is reasonably necessary for the governing body to receive the information for the purposes of performing its functions under the Local Government Act.

Individual councillors are not entitled to request or receive information from the committee.

Annual assessment

A council's audit, risk and improvement committee must provide an annual assessment to the governing body each year.



This will ensure that the governing body of the council is fully informed of the audit, risk and improvement committee's work and its opinion on how council is performing.

The annual assessment must include:

- a summary and assessment of the work the audit, risk and improvement committee performed to discharge its responsibilities during the preceding year
- an overview and assessment of the work of the internal audit function
- progress against key performance indicators
- advice on the appropriateness of the committee's terms of reference
- an independent assessment and advice on the matters considered by the committee during the year that, in the committee's opinion, and based on the level of risk facing the council, the governing body should be informed of, and
- other views or opinions on the council that the committee wishes to share.

Before providing their annual assessment to the governing body, the audit, risk and improvement committee must provide a copy of its annual assessment report to the general manager to allow them to develop an action plan to address any issues identified.

Both the audit, risk and improvement committee's annual assessment and the general manager's action plan can then be considered jointly by the governing body at an annual assurance meeting with the committee and the general manager.

Annual assurance meeting

It would be beneficial for the audit, risk and improvement committee, the governing body and general manager to come together annually to discuss the committee's annual assessment of the council, how the council

proposes to respond to the committee's recommendations for corrective actions and other important internal audit and risk management matters.

The governing body may wish to hold an extraordinary or additional meeting each year for this purpose.

The annual assurance meeting should also discuss:

- the audit, risk and improvement committee's annual plan and review priorities for the upcoming year, for the approval by resolution of the governing body
- any resourcing issues for the internal audit or risk management functions that the committee considers the governing body should be informed of
- any updated committee terms of reference, for approval by resolution by the governing body, and
- the general manager's annual assessment of the council's risk management function (see core requirement 2).

The mayor, chair of the audit, risk and improvement committee and general manager can invite observers or other participants to the meeting where appropriate.

Strategic assessment

A council's audit, risk and improvement committee must provide to the governing body of the council a comprehensive independent assessment every council term (i.e. four years) of all the matters listed in section 428A of the Local Government Act that have been reviewed during the council term.



This will ensure that the governing body of the council is fully informed of the council's performance in relation to the matters specified in section 428A of the Local Government Act and what corrective actions are required to address any issues identified.

It will also provide the governing body with essential information that will assist with

strategic decision-making and resource allocation during the next council term.

Before providing its strategic assessment to the governing body, the audit, risk and improvement committee must provide a copy of its report to the general manager to allow the general manager to develop an action plan to address any issues identified during the next council term.

Given the audit, risk and improvement committee's functional responsibility for the internal audit function of the council, the committee must also develop an action plan for the governing body to address any internal audit issues identified by the committee.

The audit, risk and improvement committee's strategic assessment and the action plans can be considered jointly by the governing body at a strategic assurance meeting held every four years.

Strategic assurance meeting

It would be beneficial for the audit, risk and improvement committee, the governing body and general manager to come together at the close of the council term or commencement of the new council term to discuss the committee's strategic assessment of the council, how the council proposes to respond to the committee's recommendations during the next council term and any other important internal audit and risk management issues.

This discussion can also inform the strategic plans to be made through the integrated planning and reporting process for the next council term.

The governing body may wish to hold an extraordinary or additional meeting for this purpose.

The four-yearly assessment meeting could also discuss:

- the audit, risk and improvement committee's four-year strategic work plan for the upcoming council term for approval by resolution of the governing body
- a four-yearly review of the committee's terms of reference, for noting by the governing body and where applicable, an

updated terms of reference for approval by resolution

- the governing body's four-yearly review of the committee's performance and action plan to address any issues identified, for approval by resolution of the governing body (see below).

Review of committee performance

It is important that the work of the audit, risk and improvement committee is regularly assessed, and that the committee is accountable for its performance.

This will ensure that the audit, risk and improvement committee is making a valuable contribution to the council and allow the governing body to determine whether any changes to the committee's terms of reference or membership are required.

At least once each council term (i.e. four years) the governing body of the council is to conduct a review of the effectiveness of the audit, risk and improvement committee in conformance with the International Professional Practice Framework.



This will ensure that audit, risk and improvement committees are assessed consistently across all councils and allow councils to have confidence in the work of their committees.

To conduct the review, the governing body can:

- engage a suitably qualified external assessor or peer to undertake the review, or
- undertake the review itself and engage an external assessor or peer to conduct an independent evaluation of the findings.

The external assessor or peer should have specific skills relevant to the major risks of the council and a strong understanding of what constitutes best practice in relation to the operations and performance of audit, risk and improvement committees.

Review criteria

The review of the audit, risk and improvement committee's performance must consider:

- the appropriateness of the committee's terms of reference and whether these have been complied with
- the processes and procedures undertaken by the committee
- the collective performance of the committee – for example:
 - the quality and timeliness of assurance and advice provided by the committee to the governing body and general manager
 - the effectiveness of the committee in meeting its responsibilities
 - the relationship and quality of communication with the council and other stakeholders
- the individual performance of each member – for example, their:
 - understanding of the council, its key risks and internal controls
 - ability to act objectively and independently
 - preparation for committee meetings
 - contribution to the work of the committee through their participation in discussion and decision-making, skills and experience
- the performance of the chair, including whether the chair has (in addition to their performance as a member of the committee):
 - demonstrated positive leadership
 - maintained effective working relationships among audit, risk and improvement committee members and with the council, council's external auditor and the internal audit function
 - ensured the governing body and general manager was well informed and briefed on the strategic and technical aspects of internal audits and risk and control issues, and
 - lead effective committee meetings.
- the way the committee, external auditor, council and internal audit function work

- together to manage risk and support the council and how effective this is
- whether the committee has effectively reviewed the matters identified in section 428A of the Local Government Act and contributed to an improvement in these areas, and
 - whether the composition of the committee is appropriate.

When conducting the review, the governing body is to consider feedback on each member's performance by the chair and councillor member of the committee and the general manager.

Self-assessments by the chair and members of the audit, risk and improvement committee can also be used.

The governing body of council can also request the chair of the committee to address the council and answer any questions about the operations of the committee.

The chair of the audit, risk and improvement committee is to develop an action plan for the governing body of the council to address any issues identified in the performance review and present it to the governing body at the four-yearly assessment meeting.

Annual attestation

It is important that councils are accountable to their communities for the efficacy of their internal controls and assurance mechanisms and the operations of their audit, risk and improvement committees.

Commencing with the 2024-2025 annual report, the general manager will be required under the Local Government Regulation to attest each year in the council's annual report whether the council has complied with the following requirements in relation to its audit, risk and improvement committee, as detailed in these Guidelines:

- the council's audit, risk and improvement committee is independent of the council and has three or more members
- the chair and all members of the committee meet the eligibility and

independence criteria required of their position, and have been appointed in accordance with prescribed membership term limits

- the council's audit, risk and improvement committee operates according to terms of reference approved by the governing body of the council that are consistent with the approved Model Terms of Reference contained in these Guidelines
- the council's audit, risk and improvement committee operates according to annual and four-year strategic work plans endorsed by the governing body of the council
- council's audit, risk and improvement committee provides an annual assessment to the governing body each year, and a strategic assessment of all the matters listed in section 428A of the Local Government Act to the governing body each council term
- the council provides the committee with direct and unrestricted access to the general manager, senior management, council information and council resources so it can fulfil its responsibilities, and
- at least once each council term the governing body of the council reviews the effectiveness of the audit, risk and improvement committee.

Further information on annual attestation requirements is detailed in the statutory framework section of these Guidelines.

Further resources

The following resources may be useful to councils seeking more information about the establishment and operation of their audit, risk and improvement committee.

This is not an exhaustive list but provides a useful starting point for councils that seek to better understand what audit, risk and improvement committees do, and how they can be supported to add maximum value to councils.

[Audit Committees – A Guide to Good Practice \(3rd edition\)](#) – Auditing and Assurance Standards Board, Australian Institute of Company Directors and The Institute of Internal Auditors-Australia (2017)

Provides a checklist to assess the performance of audit, risk and improvement committees and members.

[Audit Committees – A Guide to Good Practice for Local Government](#) – Victorian Government, Department of Planning and Community Development (2011)

Provides detailed information on the activities audit, risk and improvement committees can perform in relation to external audit, financial management, risk management and internal audit.

[Audit Committee Guidelines – Improving Accountability and Performance](#) – The State of Queensland (Queensland Treasury and Trade) (2012)

Provides sample:

- letter of appointment for audit, risk and improvement committee members
- self-assessment questionnaire for committee members, external peer review checklist and management feedback questionnaire when assessing committee performance, and
- committee meeting agenda.

[Audit Committees \(RM-G2\)](#) – Australian Government, Department of Finance

Provides a list of professional peak bodies councils could contact to source audit, risk and improvement committee members.

[Chairing an Audit Committee](#) – KPMG

Provides information about the role of audit, risk and improvement committee chairs, particularly in relation to:

- leadership, and
- managing the work of audit, risk and improvement committee members.

[Dealing with Corruption, Fraud and the ICAC: the role of public sector Audit and Risk Committees](#) – Independent Commission Against Corruption (2020)

Provides information about the role of audit, risk and improvement committees and risk management in relation to fraud and corruption.

[Establishing a skills-based audit committee](#) – Institute of Internal Auditors-Australia (2020)

Provides an analysis matrix template to assess the skills mix of an audit, risk and improvement committee when appointing committee members.

[Guide for Audit & Risk Committees: Understanding Financial Statements](#) – NSW Treasury (2017)

Provides information on activities audit, risk and improvement committee can undertake when reviewing financial statements.

[How can audit committee members add value?](#) – PriceWaterhouseCoopers (2011)

Provides a checklist for measuring the performance of audit, risk and improvement committees.

Internal Audit and Risk Management Policy for the General Government Sector (TPP-20-08) – NSW Treasury (2020)

Provides information on the NSW public sector risk management and internal audit policy, including:

- the operation of shared audit, risk and improvement committees in the NSW public sector
- matters to consider when deciding whether to enter into a shared arrangement, and
- recommended content for shared use agreements.

Public Sector Audit Committees: Independent assurance and advice for Accountable Authorities – Australian National Audit Office (2015)

Provides information about the role and functions of audit, risk and improvement committees, including:

- member roles and responsibilities
- how to foster good relationships between the council and committee, and
- checklists for:
 - secretariat actions
 - planning forward meeting agendas, and
 - assessing the performance of members.

Service Delivery Review: A how to manual for local government (second edition) – Australian Centre of Excellence for Local Government (2015)

Outlines the factors councils and audit, risk and improvement committees may consider when reviewing service delivery by the council.

Setting up the Audit Committee – PriceWaterhouseCoopers (2011)

Provides information on:

- how a council might assess the financial literacy of an audit, risk and improvement committee member, and
- best practice for inducting new committee members.

The Role of the Audit Committee Chair – KPMG (2019)

Provides information on the role of audit, risk and improvement committee chairs, particularly in relation to:

- running committee meetings, and
- overseeing risk management.

Core requirement 2:

Risk management

- Each council and joint organisation must implement a risk management framework that is consistent with current Australian standards for risk management

Guiding principles for risk management

- ❖ Each council must accept responsibility and accountability for risk management in the council.
- ❖ Each council has a risk management framework that is appropriate for that council and is consistent with the accepted Australian risk management standard.
- ❖ Risk management is an integral part of all council management, operations, functions and activities and it is clear who is responsible for managing each risk.
- ❖ Each council supports the development of a positive risk culture.
- ❖ Councils regularly review their risk management framework and can flexibly adapt their risk management activities to suit their operations and risk profiles.
- ❖ Each council is accountable to the community for complying with its statutory obligation to adopt and maintain a risk management framework.

Standards

Each council must manage its strategic and operational risks and implement a risk management framework that is consistent with the current Australian risk management standard, and appropriate for the council's risks.



It is recognised that each council will have different risk management requirements depending on its size, needs, budget, operational complexity and risk management maturity.

Councils have the flexibility under the Australian risk management standard to adapt the size, scope and delivery of their risk management framework provided it reflects the principles, key elements and processes set out in the standard for managing risks in any sized council or organisation.

Councils can adopt additional requirements that supplement those in the standard provided they do not conflict with the standard.

The current risk management standard at the time of the release of these Guidelines is *AS ISO 31000:2018 Risk Management – Guidelines*.

Under current licensing and copyright requirements, each council will need to purchase an individually licensed copy of *AS ISO 31000:2018* from Standards Australia to obtain a full copy of the standard.

The following is a summary of the definitions, principles, key elements and process of *AS ISO 31000:2018*.

Definitions

The definition of 'risk' and 'risk management' adopted by councils as part of their risk management framework will be the same as that adopted in the current Australian risk management standard.

At the time of printing, *AS ISO 31000:2018* defines:

- risk as the "effect of uncertainty on objectives, where an effect is a deviation from the expected. It can be positive, negative or both, and can address, create or result in opportunities and threats", and
- risk management as "coordinated activities to direct and control an organisation with regard to risk".

Principles

In summary, *AS ISO 31000:2018* requires a council's approach to risk management to be based on the following eight specific principles to ensure it is effective:

- **integrated** – risk management is integrated into all council activities and decision-making processes
- **structured and comprehensive** – risk management is a structured and comprehensive process that achieves consistent and comparable results

- **customised** – the risk management framework and process are customised to the council
- **inclusive** – risk management is inclusive of all stakeholders and enables their knowledge, views and perceptions to be considered
- **dynamic** – risk management is dynamic and able to respond to changes and events in an appropriate and timely manner
- **best available information** – risk management decisions are based on the best available information and take into account any limitations and uncertainties
- **human and cultural factors** – risk management takes into account human and cultural factors, and
- **continual improvement** – risk management is continuously and periodically evaluated and improved through learning and experience.

Key elements

To achieve these principles, *AS ISO 31000:2018* requires each council to ensure its risk management framework demonstrates the following six elements:

Leadership and commitment

AS ISO 31000:2018 requires risk management to be supported by a positive culture that promotes and communicates risk management as part of everyday activities and decision-making.

The standard states that this culture can only exist when management (i.e. the governing body, general manager and senior staff) demonstrate strong leadership and commitment to risk management.

Practical measures the governing body and/or general manager can take under *AS ISO 31000:2018* to exhibit strong leadership in risk management are set out further below.

Integration

AS ISO 31000:2018 requires that risk management is fully integrated within a council and made part of the council's

purpose, governance, leadership, strategy, objectives and operations.

Risk is to be managed in every part of the council's organisational structure and every council employee is to be responsible for managing risk.

Design

AS ISO 31000:2018 requires that the design of a council's risk management framework:

- is based on the unique needs, characteristics and risks of the council, and its external and internal context
- demonstrates the council's continual commitment to risk management
- assigns risk management roles, responsibilities and accountabilities within the council
- allocates appropriate council resources for risk management, and
- effectively documents and communicates risk management across the council.

Implementation

AS ISO 31000:2018 requires that each council implements its risk management framework by:

- developing a risk management plan that provides structure for how the council will implement its risk management policy and conducts its risk management activities, and
- ensuring the council's risk management activities are clearly understood and practiced.

The plan should identify decision makers for risk within the council and ensure risk management processes and arrangements are well understood by the council and practiced.

Evaluation

AS ISO 31000:2018 requires that each council regularly evaluates the effectiveness of its risk management framework and determines whether it remains suitable.

Improvement

AS ISO 31000:2018 requires that each council continually adapts and improves the design of its risk management framework and how it is integrated throughout the council to help the council move to a higher level of risk maturity.

Process

AS ISO 31000:2018 provides each council with a systematic process to identify, assess and prioritise risks, decide how they will be managed, and document and communicate them across the council.

The process defined in *AS ISO 31000:2018* consists of the following steps:

- defining the scope of the council's risk management activities to assist in planning the council's risk management approach
- establishing the internal and external context to ensure that the council understands the internal and external environment it operates in and how risk management will impact, and be impacted by these
- deciding the performance indicators that the council will use to measure the effectiveness of its risk management framework and identify gaps between its actual and desired performance
- defining the council's risk criteria/appetite – that is, the amount and type of risk that the governing body is willing to take, or not take, in order to achieve its strategic plan and objectives
- conducting risk assessments to determine what risks need to be managed
- deciding risk treatment options
- developing risk treatment plans that document how controls will be implemented, and
- writing risk reports that will document and communicate the risk management framework to all staff and be used by the council to regularly review the risk management framework.

County councils and joint organisations

County councils and joint organisations have a lower risk profile than larger and more operationally complex general-purpose councils.

However, they are still responsible for the expenditure of public money, providing services (in the case of county councils), and delivering outcomes on behalf of their member councils and regions (in the case of joint organisations), and need to identify and manage risks appropriately.

Given their lower risk profiles, county councils and joint organisations can share the administration of their risk management framework with another council to reduce costs.

Alternatively, joint organisations can undertake the coordination and administration of their member councils' risk management frameworks on behalf of the councils.

Any shared risk management function must operate as an individual resource for each council in the shared arrangement and implement the requirements in these Guidelines for each council individually.

A shared risk management function should only be established and utilised by a county council or joint organisation where the shared function can maintain a high level of understanding and fulfilment of each council's risk management needs, as well as effective working and reporting relationships with the general manager and senior staff of each council in the shared arrangement.

Councils that establish a shared risk management function should develop and sign a formal agreement with the other councils in the shared arrangement which outlines how the shared arrangement will operate and costs are shared.

Resourcing

AS ISO 31000:2018 requires each council to ensure sufficient resources are allocated to implement the council's risk management framework and deliver the internal controls needed to ensure the council's risks are appropriately managed.

In practice, this responsibility will fall to the governing body and/or general manager of the council.

These resources include the necessary:

- human resources (with appropriate skills and experience)
- technology, equipment, tools and information management systems for managing risk
- documented processes and procedures, and
- professional development and training for staff to ensure they can fulfil their risk management responsibilities.

To ensure that the governing body and/or general manager makes informed budgeting decisions, the audit, risk and improvement committee is to advise of the resources it considers that the council needs to effectively implement its risk management framework, having regard to any budgetary constraints facing the council and the council's operational environment.

Roles and responsibilities

AS ISO 31000:2018 requires that each council assign risk management roles and responsibilities to all relevant roles within the council.

To ensure effective implementation, the standard also requires each council to demonstrate strong leadership and commitment to risk management.

In practice, this will see the general manager, governing body and council staff take on the following responsibilities:

Governing body – strategic leadership

Consistent with the governing body's strategic leadership role under section 223 of the Local Government Act, the governing body is responsible for establishing the foundational elements of the council's risk management framework and setting the 'tone at the top'.

This includes approving by resolution the council's risk criteria/appetite – a statement that conveys how much risk will be tolerated by the governing body in the pursuit of the strategic objectives for the council, and how risk is to be managed and decisions made within this context.

The council's risk criteria/appetite is to be approved in consultation with the audit, risk and improvement committee.

General manager – operational leadership

Consistent with the general manager's role under section 335 of the Local Government Act to conduct the day-to-day management of the council, the general manager has ultimate responsibility and accountability for risk management in the council.

A council's general manager is responsible for implementation of the council's risk management framework. This includes:

- overseeing the council's risk management framework and ensuring it is effectively communicated, implemented and reviewed regularly
- approving the council's risk management policy, plans and risk reports (where applicable)
- promoting and championing a positive risk culture
- assigning authority and accountability for risk management at appropriate levels and to appropriate staff in the council, and ensuring they are held accountable for these responsibilities
- annually attesting that the council's risk management framework complies with these Guidelines (see below), and

- approving the council's implementation of corrective actions recommended by the council's internal audit function, external audit and audit, risk and improvement committee.

Depending on the council's needs, resources and organisational structure, and to assist the integration of risk management across the council, the general manager may wish to delegate responsibility for key aspects of the council's risk management framework to a senior manager or group of senior managers established for this purpose.

The delegate would report to the general manager on risk management issues.

An example risk management policy is provided at **Appendix 4**.

Risk management function – oversight and facilitation

Each council is to establish a risk management function responsible for the day-to-day activities required to implement the council's risk management framework and provide specialist risk management skills and knowledge.

The council's risk management function is a key support to the general manager in meeting their risk management responsibilities and reports directly to the general manager or their delegate.

Each council will have the flexibility to establish its risk management function based on its structure, resourcing, risk management needs and risk management maturity.

Regardless of its structure and composition, the role and responsibilities of the risk management function should include:

- supporting the general manager by coordinating and providing clear and concise risk information, advice and/or reports that can be used in planning and decision-making
- coordinating the various activities relating to risk management within the council
- helping to build a risk management culture within the council, including facilitating and driving risk management at the

strategic and operational level within the council and ensuring consistency in practice

- ensuring there are easily accessible systems and processes in place to enable all staff to conveniently undertake risk management in their day-to-day work
- ensuring risk management processes are applied consistently across the council
- organising appropriate staff risk management training and development
- developing and maintaining a risk reporting framework to enable regular advising/reporting of key risks, and the management of those risks, to the general manager or their delegate
- supporting council staff with their risk management obligations and providing staff with advice and tools to ensure risk management compliance
- implementing effective risk management communication mechanisms and information system/s
- establishing and maintaining an ongoing monitoring system to track the risk management activities undertaken within the council and assessing the need for further action
- assessing risk management information for completeness, accuracy and consistency (for example, risk registers, risk treatment plans), and
- preparing advice or reports for the audit, risk and improvement committee and attending committee meetings (where requested).

In order to fulfil its role, the risk management function needs to:

- have a well-developed understanding of the council and its operations
- have the skills, knowledge and leadership qualities required to support and drive risk management
- have sufficient authority to intervene in instances where risk management efforts are being hampered by a lack of cooperation or through lack of risk management capability or maturity, and
- be able to add value to the risk management process by providing guidance and support in managing difficult

risk, or risks spread across a number of the council's business units or operational areas.

Dual responsibilities

It is important that the risk management function is independent of line management to reduce the potential for management influence on the risks that are reported on, and to ensure independence.

Where risk management oversight or facilitation activities are performed by council staff with other council responsibilities, the council must put safeguards in place to limit any cognitive bias (which can lead to faulty risk assessments and decision-making errors).

Depending on the specific needs and circumstances of the council, these safeguards could include:

- the audit, risk and improvement committee being informed of the other council responsibilities the risk management function has, including reporting lines, responsibilities and expectations related to the role/s
- any potential issues or conflicts of interest arising from these other roles being formally documented and communicated to the committee
- risk management staff being prohibited from undertaking risk management evaluations and reviews in relation to the council operations they are responsible for, and/or
- the committee regularly assessing that the safeguards put in place are effective.

Internal audit function – review and assurance

Councils' internal audit function is responsible for reviewing and providing advice to the audit, risk and improvement committee and the council on the effectiveness of the council's risk management framework.

Given the need to maintain the independence and objectivity of the internal audit function, the following boundaries are to apply with respect to the role of the internal audit

function in relation to the council's risk management framework:

- it is to be clear that council management remains responsible for risk management
- the internal audit function is to provide advice and challenge and support management's decision-making, as opposed to taking risk management decisions themselves
- the internal audit function should not:
 - manage any of the risks on behalf of the council
 - set the council's risk criteria/appetite
 - impose risk management processes
 - decide or implement risk responses, or
 - be held accountable for risk management activities.

Audit, risk and improvement committee – advice and assurance

An audit, risk and improvement committee's role in relation to risk management is to support the governing body and general manager and to ensure that the council's risk management framework is appropriate and operationally effective.

The breadth and depth of this assurance role is to be determined by the council and the audit, risk and improvement committee and could include:

- assessing whether risks at all levels are identified, assessed and reviewed regularly by the council
- being involved in the regular review of the council's risk register
- reviewing the integration of risk management into business planning and program implementation activities, and/or
- providing assurance in relation to the management of risk or governance arrangements on individual projects, programs or activities.

Appendix 3 provides further examples of the activities the audit, risk and improvement committee could perform in relation to risk management.

Review and reporting

Quarterly reporting

Each council should ensure its risk management framework is regularly monitored and reviewed to ensure it is relevant, effective and complies with the current Australian risk management standard.

Each council should base its ongoing monitoring and review process on its own needs. However, this should include at a minimum, providing quarterly advice from the risk management function to the general manager or their delegate.

This will ensure that risks are being correctly identified, prioritised and treated, and any emerging problems are known and rectified quickly.

Annual assessment

Each council's risk management function is to conduct an annual self-assessment of the council's risk management framework.

The annual self-assessment is to report to the general manager whether the council's risk management framework:

- complies with these Guidelines
- is sufficiently resourced
- operates effectively, this includes whether:
 - the internal control framework appropriately reflects the council's risk criteria/appetite
 - risks are formally considered when developing and implementing all council policies, programs, projects and other activities, including procurement
 - risk management covers all relevant risk categories including strategic, operational, compliance, reputational and reporting risks
 - major risks have been identified and assessed by the council and appropriate risk treatments have been implemented that reflect the council's risk criteria

- the council's internal controls are effective and appropriate
- the council's risk register and risk profile are current and appropriate
- risk information is captured and communicated in a timely manner across the council, enabling management and staff to carry out their responsibilities, and
- the council's risk management policies, procedures and plans are being complied with.

The general manager should discuss the annual assessment of the council's risk management function with the governing body and audit, risk and improvement committee at the council's strategic assurance meeting held each council term.

Strategic assessment

The Local Government Regulation (section #tbc) requires councils' audit, risk and improvement committees to keep the implementation of a council's risk management framework under review and provide advice to the council on its implementation.

A council's audit, risk and improvement committee must provide an assessment of the effectiveness of the council's risk management framework to the governing body each council term, as part of the committee's four-yearly strategic assessment.



As part of the audit, risk and improvement committee's assessment of the council's risk management function, it should consider whether:

- the council is providing sufficient resources for risk management
- the council's risk management framework complies with these Guidelines, and
- the council's risk management framework operates effectively, is being complied with and supports the achievement of the council's strategic goals and objectives.

The general manager is to develop an action plan for the governing body to address any risk management issues identified by the committee.

The audit, risk and improvement committee and general manager should discuss the strategic assessment and action plan with the governing body at the council's strategic assurance meeting held each council term (see above).

Performance measures

To ensure the effectiveness of the council's risk management activities can be regularly monitored and reviewed, each council must ensure that it:

- assigns performance targets to risk management activities that can be measured against goals and objectives, and
- can obtain the data needed to measure the impact of the council's risk management framework.

Annual attestation

Commencing with the 2024-2025 annual report, the general manager will be required under the Local Government Regulation to attest each year in the council's annual report whether the council has complied with the following requirements in relation to its risk management activities:

- the council has adopted a risk management framework that is consistent with current Australian risk management standards and is appropriate for the council's risks, and
- the council's audit, risk and improvement committee reviews the implementation of the council's risk management framework and issues an assessment of the effectiveness of the council's risk management framework to the governing body each council term.

Further information on annual attestation requirements is detailed in the statutory framework section of these Guidelines.

Further resources

The following resources may be useful to councils seeking more information about the establishment and operation of their risk management framework. They provide examples, checklists, samples, templates and other practical tools councils could use.

This is not an exhaustive list but provides a useful starting point for councils that seek further information.

[A Guide to Risk Management – The State of Queensland \(Queensland Treasury\) \(2020\)](#)

Provides guidance on how to apply the Australian risk management standard, including checklists for each stage of the risk management process.

[AS ISO 31000:2018 Risk Management – Guidelines – International Standards Organisation \(2018\)](#)

The current Australian risk management standard at the time of printing (for purchase from the International Standards Organisation)

[Audit Committee Guidelines – Improving Accountability and Performance – The State of Queensland \(Queensland Treasury and Trade\) \(2012\)](#)

Provides checklists of the matters audit, risk and improvement committees are to consider when reviewing a council's risk management framework and internal controls.

[Dealing with Corruption, Fraud and the ICAC: the role of public sector Audit and Risk Committees – Independent Commission Against Corruption \(2020\)](#)

Provides information about the role of risk management in relation to fraud and corruption.

[Risk Management Toolkit for Public Sector Agencies \(TPP 12-03\) – NSW Treasury \(2012\)](#)

Consists of three parts:

- Executive Guide (TPP 12-03a)

- Volume 1 – Guidance for Agencies (TPP 12-03b), and
- Volume 2 – Templates, Examples and Case Study (TPP 12-03c).

Provides detailed and practical advice on the various elements of the Australian risk management standards (ISO 31000), templates and worked examples.

[The Three Lines of Defense in Effective Risk Management and Control – Institute of Internal Auditors \(2013\)](#)

Outlines the three lines of defence approach to risk management and the role of management and internal audit in risk management.

[The Role of Internal Auditing in Enterprise-Wide Risk Management – Institute of Internal Auditors](#)

Outlines what enterprise risk management is, how it can be implemented and the role of internal audit in risk management.

[Victorian Government Risk Management Framework Practice Guide – Victorian Managed Insurance Agency](#)

Provides guidance on how to apply the Australian risk management standard, including examples of a risk appetite/criteria statement.

Core requirement 3:

Internal audit

- Each council and joint organisation must have an independent internal audit function that reports to the audit, risk and improvement committee and is consistent with current international standards for internal audit

Guiding principles for internal audit

- ❖ The internal audit function operates independently and with appropriate expertise in a manner that is appropriate for the council.
- ❖ The internal audit function has access to all council information necessary to fulfil its role and responsibilities.
- ❖ The internal audit function is appropriately positioned in the council's governance framework to ensure its work complements the work of other internal and external assurance providers.
- ❖ The internal audit function has a comprehensive work plan linked to the council's strategic objectives and current and emerging risks.
- ❖ The audit, risk and improvement committee receives relevant and timely advice from the internal audit function to ensure the committee can fulfil its role and responsibilities.
- ❖ The internal audit function operates in a manner consistent with accepted international standards.
- ❖ The work of the internal audit function is thoroughly planned and executed, risk-based, client-focused and linked to the council's strategic goals.
- ❖ The internal audit function adds value to the council and is held accountable by the committee and governing body for its performance.
- ❖ Each council is accountable to the community for the effective implementation of its internal audit function.

Independence

Each council in NSW, (including county councils and joint organisations) must have an internal audit function to provide an independent unbiased



assessment of the council's operations and risk and control activities.

Internal audit is defined in the International Professional Practices Framework issued by the Institute of Internal Auditors as '*an independent, objective assurance and consulting activity designed to add value and improve an organisation's operations. It helps an organisation accomplish its objective by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes*'.

A council's internal audit function must operate independently of the council and internal audit activities cannot be subject to direction by the council.



To ensure that the internal audit function remains independent from council management it must have a dual reporting line that reports:



- **administratively to the general manager or a sufficiently senior role in the council to ensure the internal audit function fulfils its responsibilities, and**
- **functionally to the audit, risk and improvement committee.**

Resourcing

The governing body and general manager of the council must ensure that the council's internal audit function is sufficiently resourced to effectively carry out its work. The chair of the audit, risk and improvement committee should be consulted on the resourcing required.

The audit, risk and improvement committee's resourcing recommendations are to be minuted by the committee.

Internal audit charter

It is important that council's internal audit function has clear guidance on how it should support the audit, risk and improvement committee and the council, and that the committee and council has input into how the internal audit function will operate.

This will ensure there is clarity in the relationships between the audit, risk and improvement committee, the council and the internal audit function and that the performance of the internal audit function can be assessed.

The Local Government Regulation (section 335b) requires each council to adopt an internal audit charter to guide how internal audit will be undertaken by the council that is consistent with the approved Model Internal Audit Charter provided at Appendix 5.



The internal audit charter is to be developed by the audit, risk and improvement committee in consultation with the general manager and the head of the internal audit function and approved by resolution by the governing body of the council.

Councils may include additional provisions in their internal audit charter so long as they are not inconsistent with the approved Model Internal Audit Charter.

The audit, risk and improvement committee is to review the council's internal audit charter annually in consultation with the general manager and the head of the internal audit function.

Role of the general manager

Consistent with their role under the Local Government Act (section 355) to conduct the day-to-day management of the council, the general manager has administrative responsibility for internal audit.

This means that the general manager is responsible for:

- advising the governing body on the resources required for the effective functioning of the internal audit function
- ensuring appropriate administrative support is provided to support the work of the internal audit function - for example, access to council's human resources networks, payroll, work health and safety, office facilities and resources, council information etc
- ensuring that the internal audit function is appropriately positioned within the council to work with external bodies and internal business units and to fulfil its role and responsibilities
- ensuring the internal audit function complies with the International Professional Practices Framework, and
- annually attesting, on behalf of the council, that the council is complying with these Guidelines in relation to internal audit.

The general manager has no role in the performance of the internal audit function (e.g. the conduct of internal audits, the audit techniques used and the reporting of internal audit findings to the audit, risk and improvement committee).

Delegation

The general manager can, in consultation with the governing body of the council and the audit, risk and improvement committee, delegate their functions in relation to the oversight of the council's internal audit function to another role in the council that is sufficiently senior to ensure the internal audit function meets its responsibilities.

In making a delegation, consideration should be given to how the delegation will influence the internal audit function's ability to achieve the internal audit charter considering the:

- seniority and expertise of the delegate and demands placed on them by their other roles and responsibilities in the council
- support available to the delegate to successfully execute their delegation in relation to internal audit
- complexity of the council's core business

- risk profile of the council
- expectations of stakeholders, and
- likely demands placed on the internal audit function.

Role of the audit, risk and improvement committee

Under the Local Government Regulation (section #tbc), the audit, risk and improvement committee exercises functional oversight of a council's internal audit function to ensure it operates independently from the council.

This means that the audit, risk and improvement committee is responsible for:

- assisting the governing body to identify the resources necessary for the effective functioning of the internal audit function
- setting the annual and four-year strategic work plans for the internal audit function, including the audits that will be completed
- assessing the findings and recommendations of completed audits and providing the committee's advice and opinion on issues raised to the general manager and governing body of the council
- developing the internal audit charter that will guide the work of the internal audit function and how it operates, and
- reviewing the performance of the internal audit function.

Structure

Each council will have different internal audit requirements depending on the council's size, needs, budget and operational complexity and can either:

- establish an internal audit function for their own exclusive use, or
- share their internal audit function with another council, county council or joint organisation.

For cost and administrative efficiency, councils may also:

- establish an in-house internal audit function comprising of council staff (supplemented with contractors as may be required), and/or
- outsource their internal audit function to an external provider/s – for example, a private sector accounting firm, internal audit firm, internal audit contractor etc.

These options will assist councils, county councils and joint organisations:

- to establish their internal audit function in the most cost-effective way
- to source expert internal audit personnel in locations where it may be difficult to recruit staff with the necessary skill set
- to access a larger resource pool than would be available to a single council, and
- create efficiencies through common systems, shared knowledge and internal audit tools.

When deciding the most appropriate way to structure a council's internal audit function, the general manager should consider the viability and capacity of a shared internal audit function to achieve the council's internal audit charter given the:

- size of the council in terms of both staffing levels and budget
- geographical and functional distribution of the council's operations
- complexity of the council's core business
- risk profile of the council
- expectations of stakeholders, and
- likely demands placed on the internal audit function by other councils in the shared arrangement.

Whatever structure is adopted, the head of a council's internal audit function must:



- **be a council employee and cannot be outsourced, other than through a shared arrangement with another council, and**
- **meet the eligibility and independence criteria for the position.**

This is to ensure that the council retains strategic control of the internal audit function and can actively monitor its performance.

County councils

County councils may enter into a shared arrangement with one of their constituent councils or another council.

Joint organisations

Joint organisations that do not host a shared internal audit function for the use of their member councils can enter into a shared arrangement with a member council or, if this is not possible, with another council or joint organisation.

In-house internal audit function

An in-house internal audit function is one where internal auditors and other staff (where required) are employed by the council to conduct the internal audits and other activities in the audit, risk and improvement committee's annual and four-year strategic work plans.

The advantages of establishing an in-house internal audit function may include:

- council retaining ownership of internal audit information
- confidentiality of sensitive information contained in audits
- stronger direction and oversight by the council of the internal audit function with more direct control over the quality of audits conducted
- internal auditors having council-specific knowledge and experience that delivers better audit results
- greater agility to respond quickly to emerging issues, and
- the retention of corporate knowledge within the council.

Disadvantages may include:

- challenges attracting and retaining suitable staff

- specialist skills may not be available in-house
- reduced flexibility, and
- the need to provide council facilities and office space for internal audit personnel.

Councils that establish an in-house internal audit function are not limited to employing staff members and can supplement the internal audit team's work with audits undertaken by external providers where necessary.

Metropolitan and larger regional councils are encouraged to establish an in-house internal audit function given their:

- significant assets
- higher risk profiles
- higher levels of expenditure, and
- more complex transactions and operations.

Head of an in-house internal audit function

Each council's internal audit function must be led by a staff member with sufficient skills, knowledge, experience and integrity to ensure it undertakes its role appropriately, fulfils its responsibilities to the audit, risk and improvement committee and makes a valuable contribution to the council.

The head of an in-house internal audit function (described as the 'chief audit executive' in the International Professional Practices Framework) also needs to report to the general manager or a sufficiently senior role in the council that ensures the internal audit function fulfils its responsibilities.

For some councils with larger budgets and higher risks, the head of the internal audit function will require the support of a dedicated internal audit team to fulfil the internal audit charter.

For other smaller councils, their size and risk profile may not justify additional internal audit staff and the head of the internal audit function will be sufficient.

The head of the internal audit function may also have other council responsibilities outside of internal audit.

Role and responsibilities

For all in-house internal audit functions, regardless of size, the key responsibilities of the head of the internal audit function include:

- managing the day-to-day activities of the council's internal audit activities to ensure they add value to council
- managing the council's internal audit budget
- supporting the operation of the audit, risk and improvement committee
- approving internal audit project plans, conducting or supervising audits and assessments and providing independent advice to the audit, risk and improvement committee
- monitoring the council's implementation of corrective actions that arise from the findings of audits
- fulfilling the committee's annual and four-year strategic work plans
- ensuring the council's internal audit activities comply with these Guidelines
- managing internal audit personnel and ensuring that they have the skills necessary to fulfil the role and responsibilities of the internal audit function (where appropriate), and
- contract management and oversight of supplementary external providers (where appropriate).

Eligibility criteria

To fulfil these responsibilities, the head of the internal audit function:

- must be a council employee and cannot be outsourced, other than through a shared arrangement with another council – this is to ensure that the council retains strategic control of the internal audit function and is able to actively monitor the performance of the internal audit function
- must be independent, impartial, unbiased and objective when performing their work and free from conflicts of interest
- should possess the following skills, knowledge and experience to effectively carry out their role:

- the credibility to ensure they can negotiate on a reasonably equal footing with the general manager (or their delegate), governing body and audit, risk and improvement committee
- the skills, knowledge and personal qualities necessary to lead credible and accepted internal audit activities in the council
- strong experience overseeing internal audit
- appropriate qualifications and professional certifications, and
- local government experience (preferred).

The head of the internal audit function must also operate and conduct the internal audit activities in accordance with the International Professional Practices Framework, including its Code of Ethics.

As a council employee, the head of the internal audit function must comply with all relevant council policies and procedures, including the council's code of conduct.

Independence

It is important that the head of an in-house internal audit function has the functional independence necessary to independently assess and report on the way the council operates.

As a safeguard, the Local Government Regulation (section #16c) requires the general manager to consult with the chair of the audit, risk and improvement committee on any decisions affecting the employment of the head of the internal audit function (including disciplinary measures).

If the head of the internal audit function is dismissed, the general manager must report the reasons for their dismissal to the governing body of the council.

Where the chair of the audit, risk and improvement committee has any concerns about the treatment of the head of the internal audit function, or any action taken that may compromise the head of the internal audit function's ability to undertake their functions

independently, they can report their concerns to the governing body of the council.

The head of the internal audit function is required to confirm at least annually to the audit, risk and improvement committee the independence of internal audit activities from the council.

Access to council staff and information

All internal audit personnel, including the head of an in-house internal audit function have direct and unrestricted access to council staff, the audit risk and improvement committee and council information and resources necessary to undertake their role and responsibilities.



All council staff and contractors should have unrestricted access to the head of the internal audit function to allow them to alert them to emerging risks or internal audit related issues.

Internal audit team

Any other staff members appointed to council's in-house internal audit function report directly to the head of the internal audit function.

As council employees, internal audit staff must comply with all relevant council policies and procedures including the council's code of conduct.

In-house internal auditors must also conduct internal audit activities in accordance with the International Professional Practices Framework.

Internal audit should be performed by professionals with an appropriate level of understanding of the council's culture, systems and processes to provide assurance that the internal controls in place are sufficient to mitigate risk, that governance processes are adequate, and that organisational goals and objectives are met.

In-house internal auditors should therefore possess the following skills, knowledge and experience to effectively carry out their role:

- the skills, knowledge and experience necessary to conduct internal audit activities in the council – for example:
 - accounting
 - finance
 - economics
 - governance
 - management
 - law
 - taxation
 - fraud and corruption
 - IT
- effective interpersonal and communication skills to ensure they can engage with council staff effectively and collaboratively
- honesty, integrity and due diligence, and
- appropriate qualifications and professional certifications.

Local government experience or expertise is also strongly preferred.

Dual responsibilities

To ensure the internal audit function's independence and objectivity, it is best practice that the head of the in-house internal audit function and any other members of an in-house internal audit team have no other council responsibilities other than internal audit.

However, it is recognised that some councils may find it difficult to employ a stand-alone head of an in-house internal audit function or other supporting internal auditors because of the cost involved, or because the council's location, size and risk profile may not warrant stand-alone employees.

Councils can combine the role of the head of the internal audit function and/or members of the internal audit team with other responsibilities provided there are adequate safeguards put in place by the council to limit any real or perceived bias or conflicts of interest that may lead to faulty decision-making and cognitive bias.

An internal audit role must not be combined with the role of the general manager, chief

financial officer or risk management function as it will create conflicts of interest that cannot be resolved.

Councils can also share their head of the internal audit function with another council, county council or joint organisation as part of a shared arrangement.

Depending on the specific needs and circumstances of the council, safeguards could include:

- any potential issues or conflicts of interest arising from a dual role being formally documented in the council's internal audit charter
- the audit, risk and improvement committee, or another suitably qualified and independent party, reviewing internal audit briefs, findings and recommendations before they are finalised where they concern any key risks overseen by the head of the internal audit function or internal audit team member in another role
- the head of the internal audit function or an internal audit team member not having responsibility for managing any risks or implementing any audit recommendations or corrective actions in their other role/s, and/or
- the audit, risk and improvement committee including an assessment of the independence and objectivity (for internal audit purposes) of the head of the internal audit function or any internal audit team members exercising a dual role in their annual assessment report to the governing body.

The endorsement of the governing body, in consultation with the audit, risk and improvement committee is also required for any combined roles.

Where the head of the internal audit function has a dual role in a council, they are to remain independent and report functionally to the audit, risk and improvement committee on their internal audit responsibilities.

For other council responsibilities, the head of the internal audit function reports functionally through normal council reporting lines to the general manager.

Outsourced internal audit function

Where a council outsources their internal audit function, the internal audits programmed by the audit, risk and improvement committee are undertaken by an external provider such as an internal audit or accounting firm, or an individual practitioner.

Contract management is overseen by an employee within the council.

The advantages of using external providers for internal audit activities may include:

- flexibility
- access to a wide range of expertise and experience that the council may not otherwise have in-house
- provides a window to better practice methods for smaller councils they may otherwise find difficult to access
- the ability to purchase services as and when required
- can increase internal audit's independence from the council
- overcoming challenges recruiting a head of an internal audit function and internal audit staff, and
- potential to negotiate lower fee-for-service costs.

Disadvantages may include:

- increased costs
- potential loss of corporate knowledge from the council
- difficulty building and maintaining professional relationships between council management and external contractors
- reduced oversight and control of internal audit activities
- additional in-house staff time required to source and manage external providers and contracts
- the external provider lacking council-specific knowledge
- internal audit coordinator is unlikely to be audit trained and may not have the knowledge to ensure audit quality is maintained, and

- potential confidentiality breaches.

Given their size, resources, geographical isolation and risk profiles, rural and smaller regional councils are encouraged, at a minimum, to establish an outsourced internal audit function.

Head of an outsourced internal audit function

Compared to the head of an in-house internal audit function which directly conducts or supervises internal audits and provides opinions and recommendations to the audit, risk and improvement committee, the head of an outsourced internal audit function will, in practice, primarily be a coordination and administrative role.

The key responsibilities of any council staff member assigned responsibility for leading an outsourced internal audit function include:

- contract management
- managing the internal audit budget
- ensuring the external provider completes internal audits in line with the audit, risk and improvement committee's annual and four-year strategic work plans
- forwarding audit reports by the external provider to the audit, risk and improvement committee
- acting as a liaison between the external provider and the audit, risk and improvement committee
- monitoring the council's implementation of corrective actions that arise from the findings of audits and reporting progress to the audit, risk and improvement committee, and
- assisting the audit, risk and improvement committee to ensure the council's internal audit activities comply with these Guidelines.

To fulfil these responsibilities, the head of an outsourced function:

- reports functionally to the audit, risk and improvement committee
- must be free from conflicts of interest
- must be a council employee and cannot be outsourced, other than through a shared

arrangement with another council, county council or joint organisation – this is to ensure that the council retains control of the internal audit function and is able to actively monitor the performance of the external provider

- should possess the following skills, knowledge and experience to effectively carry out their role:
 - o a good understanding of the work of audit, risk and improvement committees and internal audit, and
 - o the skills, knowledge and personal qualities necessary to manage the council's contract with the external provider and liaise between the external provider and the audit, risk and improvement committee.

As a council employee, the head of an outsourced function must comply with all relevant council policies and procedures, including the council's code of conduct.

Dual responsibilities

The head of an outsourced internal audit function can be assigned other roles and responsibilities in the council.

Where the head of an outsourced function has a dual role in a council, they are to remain independent and report functionally to the audit, risk and improvement committee in relation to their internal audit responsibilities.

For other council responsibilities, the head of an outsourced function reports functionally through normal council reporting lines to the general manager.

Councils can combine the head of an outsourced internal audit function's role with other responsibilities provided there are adequate safeguards put in place by the council to limit any real or perceived bias or conflicts of interest.

Depending on the specific needs and circumstances of the council, safeguards could include:

- any potential issues or conflicts of interest arising from a dual role being formally

- documented in the council's internal audit charter
- the audit, risk and improvement committee endorsing the dual roles
- the head of the outsourced function not having responsibility for managing any risks or implementing any audit recommendations or corrective actions in their other role/s, and/or
- the committee including an assessment of the independence and objectivity (for internal audit purposes) of the head of the outsourced function in their annual assessment report to the governing body.

External provider/s

It is important that any external provider engaged by a council is independent and can objectively assess and report on the way council operates.

To ensure the independence of an external provider, the head of an outsourced internal audit function must ensure the external provider:

- does not conduct any audits on specific council operations or areas that they have worked on within the last two years
- is not the same auditor conducting the council's external audit
- is not the auditor of any contractors of the council that may be subject to the internal audit, and
- can satisfy the requirements in these Guidelines relating to internal audit.

The head of the outsourced function must also consult with the audit, risk and improvement committee and general manager regarding the appropriateness of the skills, knowledge and experience of any external provider before they are engaged by the council.

Chair of the audit, risk and improvement committee

The chair of an audit, risk and improvement committee overseeing an outsourced internal audit function is likely to have greater responsibilities than a chair overseeing an in-house internal audit function. Because the

head of an outsourced internal audit function is largely a coordination/administrative role, the chair and members of the audit, risk and improvement committee will do much of the 'heavy lifting' and will be the primary source of advice on the findings and recommendations of audits conducted by the external provider and assurance to the council.

Councils that establish an outsourced internal audit function must ensure that their audit, risk and improvement committee has the capacity and capability to undertake this enhanced role.

Shared internal audit function

Councils can:

- share an internal audit function with another council or joint organisation as part of an independent shared arrangement
- utilise the internal audit function established by their joint organisation that is shared by member councils
- for county councils – share an internal audit function with a constituent council where possible, or with another council
- for joint organisations – share an internal audit function with a member council where possible or with another council or joint organisation.

Councils can establish an in-house or outsourced internal audit function as part of a shared arrangement.

A shared internal audit function must operate as a standalone internal audit function for each participating council in the shared arrangement and satisfy the requirements of these Guidelines for each participating council.

A shared internal audit function should only be established and utilised where all participating councils can be confident that the shared function can deliver a high level of understanding and fulfilment of each council's internal audit needs and maintain effective working and reporting relationships with each participating council in the shared arrangement.

Councils that establish a shared internal audit function should develop and sign a formal agreement with the other councils in the shared arrangement that outlines how the shared arrangement will operate and how costs will be shared.

Implementation

Given the administrative complexity of an internal audit function shared between and reporting to different councils, the following arrangements are recommended:

- the internal audit function is hosted by one of the councils, county councils or joint organisations in the shared arrangement
- the head of the internal audit function and any other internal audit team members are employees of the host council
- the head of the internal audit function reports administratively to the general manager (or their delegate) of the host council, and
- the general manager of the host council can only appoint or dismiss the head of the internal audit function in consultation with the general managers and audit, risk and improvement committees of each participating council.

For internal audit functions established by joint organisations and shared between member councils it is recommended that:

- the internal audit function is physically located at the offices of the joint organisation or a member council
- the head of the internal audit function reports administratively to the executive officer of the joint organisation
- the head of the internal audit function and any internal audit staff are employees of the joint organisation, and
- the executive officer of the joint organisation can only appoint or dismiss the head of the internal audit function in consultation with the general managers and audit, risk and improvement committees of each member council.

Head of a shared internal audit function

In-house function

The head of a shared in-house internal audit function needs to be able to:

- liaise with the governing body and general manager of each participating council about that council's internal audit activities
- implement the annual and four-year strategic work plans for each council
- conduct or oversee the individual audits of each council and monitor the implementation of corrective actions
- manage any contractual arrangements with external providers on behalf of each council (where required)
- attend the audit, risk and improvement committee meetings of each respective council on behalf of that council, and
- maintain separate and confidential information for each council.

Outsourced function

The head of a shared outsourced internal audit function needs to be able to:

- manage contracts with external providers on behalf of all councils in the shared arrangement
- liaise with the audit, risk and improvement committee and general manager of each council
- coordinate the completion of audits by the external provider in line with each council's annual and four-year strategic work plans
- provide audit reports by the external provider to the relevant audit, risk and improvement committee and general manager and coordinate council responses
- monitor implementation by each council of corrective actions arising from the findings of audits and report progress to the audit, risk and improvement committee
- assist each council's audit, risk and improvement committee to ensure the council's internal audit activities comply with these Guidelines, and

- maintain separate and confidential information for each council.

Work plans

The work of each council's internal audit function will be guided by the four-year strategic work plan and annual work plan developed by the audit, risk and improvement committee (see core requirement 1).



Performing internal audits

It is essential that a council's internal audit function performs the council's internal audits to a high and consistent standard and that the findings and recommendations that arise from audits can be relied upon by the audit, risk and improvement committee and the council.

Each council's internal audits must be performed in accordance with the requirements of the International Professional Practices Framework.



The internal audit tools, techniques and methodologies used by the internal audit function must be approved by the audit, risk and improvement committee.

Where risk information or ratings are used during the internal audit process, they must be developed and applied consistently with the current Australian risk management standard.

Audit reports

The head of the internal audit function must report the findings and recommendations of internal audits to the audit, risk and improvement committee when they are finalised.

The audit, risk and improvement committee will determine whether audit reports should be

distributed to committee members out-of-session as they are completed, or at each quarterly meeting of the committee.

Each internal audit report must reflect the requirements of the International Professional Practices Framework.

This includes:

- necessary background information, including the objective and scope of the audit
- the audit processes and methodology used
- findings and recommendations based on the audit's objectives, prioritised according to their level of risk
- recommended remedial actions to address problems identified which have been prioritised according to risk, and
- a response or action plan from the general manager and/or responsible senior managers of the council.

Before reports are finalised, the head of the internal audit function must provide a draft of each report to the responsible senior manager/s for comment so that a response to each recommendation from each relevant business unit is included in the final report submitted to the audit, risk and improvement committee.

Timeframes for management responses to internal audit recommendations are to be agreed between the general manager and the head of the internal audit function and chair of the audit, risk and improvement committee.

Responsible senior managers may reject recommended corrective action/s on reasonable grounds but should discuss their position with the head of the internal audit function or the chair of the audit, risk and improvement committee before finalising the council's position with the general manager. Reasons for rejecting the recommendation/s must be included in the final audit report.

For the recommendations that are accepted, responsible senior managers are required to ensure that:

- an action plan is prepared for each recommendation that assigns responsibility for implementation to a

council staff member/s and timeframes for implementation

- all corrective actions are implemented within proposed timeframes, and
- the head of the internal audit function is provided regular updates in relation to the implementation of the internal audit action plan.

Where corrective actions are not implemented within agreed timeframes, the audit, risk and improvement committee can invite the responsible senior manager to explain why implementation has not occurred and how the resulting risk is being addressed in the interim.

The audit, risk and improvement committee can raise any concerns it may have about the council's response to internal audit reports with the general manager and in the committee's quarterly report to the governing body so that they are aware of the risks posed to the council.

Ongoing monitoring

The head of the internal audit function should establish an ongoing monitoring system to track the internal audits undertaken for the council and follow-up the council's progress in implementing corrective actions.

Key risks or emerging issues must be reported to the audit, risk and improvement committee and general manager to ensure they can be rectified quickly before their consequences escalate.

The audit, risk and improvement committee can raise any concerns it has that may arise between meetings with the governing body via an additional report where needed. The chair of the committee can also request to meet with the mayor.

This will ensure that the governing body is kept informed of significant emerging risks posed to the council.

Policies and procedures

The general manager, in consultation with the audit, risk and improvement committee, must develop and maintain policies and procedures to guide the operation of the council's internal

audit function and the performance of internal audits.

These policies and procedures could include:

- the structure and resourcing of the internal audit function
- how internal audits will be conducted, reported, implemented and monitored
- audit methodology
- timeframes for reporting and the council's response to recommendations
- how any internal audit-related disputes are to be resolved
- the internal audit function's access to council staff, resources and information
- how the performance of the internal audit function will be reviewed
- communication between the audit, risk and improvement committee and internal audit function, and the internal audit function and the general manager, and
- information management including document retention, security and access to audit reports.

Providing advice to the audit, risk and improvement committee

Ongoing reporting to the audit, risk and improvement committee is essential to ensure that the committee is kept informed of matters considered by the internal audit function and any emerging issues that may require reporting to the governing body or general manager.

Quarterly updates

The head of the internal audit function is to ensure that the audit, risk and improvement committee is advised at each of the committee's quarterly meetings of

- the internal audits completed during that quarter

- progress in implementing the annual work plan, and
- progress made implementing corrective actions arising from any past internal audits.

The way this information is communicated is to be decided by the audit, risk and improvement committee in consultation with the head of the internal audit function.

Ongoing advice

The head of the internal audit function can meet with the chair of the audit, risk and improvement committee at any time, as necessary, between committee meetings.

This is particularly important to ensure that any urgent or emerging issues identified by the internal audit function can be quickly reported to the audit, risk and improvement committee for consideration and action before their consequences escalate.

- can be accessed by the governing body by resolution, subject to the approval of the chair of the audit, risk and improvement committee (any disputes can be referred to the Office of Local Government for resolution)
- subject to the GIPA Act, can only be released to an external party with the approval of the general manager and the chair of the audit, risk and improvement committee, except where the information is being provided to an external oversight or investigative body for the purposes of informing that agency of a matter that may warrant its attention.

Any internal audit documentation provided to any individual, including members of the governing body, should be treated as strictly confidential.

The chair of the audit, risk and improvement committee may refuse to provide access to internal audit documents or information to anyone who has previously released such information without authorisation.

Internal audit documents

Internal audit documentation includes any information or documents produced or obtained by a council's internal audit function that relates to the internal audit activities of the council.

All internal audit documents:

- are for internal use only, subject to the requirements of the *Government Information (Public Access) Act 2009* (GIPA Act)
- are to remain the property of the audited council, including where internal audit services are performed by an external provider – all rights reside with the audited council
- must be documented, retained and controlled in accordance with the International Professional Practices Framework and council policies
- can be accessed by the audit, risk and improvement committee and external auditor without restriction

Review of internal audit function performance

It is important that the work of each council's internal audit function is regularly assessed, and that internal auditors are accountable for their performance.

This will ensure that the internal audit function is making a valuable contribution to the council and allows the audit, risk and improvement committee and the council to understand how the council is performing in relation to the matters listed in section 428A of the Local Government Act.

It will also ensure that the audit, risk and improvement committee and council can determine whether any changes to the internal audit function are required.

Annual assessment

The audit, risk and improvement committee must review the performance of the internal

audit function each year and report its findings to the governing body as part of the committee's annual assessment.

The annual assessment is to ensure that any concerns regarding the operation of the internal audit function and compliance with the International Professional Practices Framework can be dealt with before they are identified in the four-yearly strategic review, by which time their consequences may have escalated.

An annual assessment will also encourage continuous improvement of the council's internal audit activities.

The audit, risk and improvement committee is to determine the nature of this assessment. It could be conducted, for example, via a self-assessment performed by the head of the internal audit function.

More information about the audit, risk and improvement committee's annual assessments is provided under core requirement 1.

Four-yearly strategic assessment

A council's audit, risk and improvement committee is to provide an assessment of the effectiveness of the council's internal audit function to the general manager and governing body in each term of the council, as part of the committee's four-yearly strategic assessment.



This assessment is to occur regardless of whether the council has established an in-house or outsourced internal audit function, as the assessment focuses on how the council has implemented its internal audit function.

As part of the audit, risk and improvement committee's assessment of the council's internal audit function, it should consider:

- the views of an independent external party with strong knowledge of internal audit operation
- the independence of the internal audit function
- whether resourcing is sufficient
- whether the internal audit function complies with these Guidelines and the

International Professional Practices Framework

- the appropriateness of annual and strategic work plans based on the risks facing the council
- progress against key performance indicators
- whether the internal audit function adds value and delivers outcomes for the council, and
- the appropriateness of the internal audit charter.

To ensure the views of the external party consulted are robust, the external party should have:

- strong skills, knowledge and expertise in internal audit
- a working knowledge of the International Professional Practices Framework, and
- no conflicts of interest that may result in bias or a lack of objectivity.

The audit, risk and improvement committee, in consultation with the general manager, is to develop an action plan for the governing body to address any issues identified by the committee in relation to the performance of the internal audit function.

The audit, risk and improvement committee's strategic assessment and action plan is to be discussed with the governing body and general manager at the strategic assurance meeting held each council term.

More information about the audit, risk and improvement committee's strategic assessment is provided under core requirement 1.

Reporting concerns about councillors or council staff

Given the nature of internal audit, there may be times when the internal audit function identifies concerns about the conduct of council staff.

Where the head of the internal audit function has concerns regarding a staff member, they can:

- raise their concerns with the chair of the audit, risk and improvement committee (if it relates to the effectiveness of the internal audit function)
- report breaches of the council's code of conduct to the general manager, or by the general manager to the mayor, as required by the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*
- report their concerns through the council's internal reporting policy, complaints handling policy or other associated protocols, and/or
- make a public interest disclosure under the *Public Interest Disclosures Act 1994* to the:
 - Independent Commission Against Corruption (concerning corrupt conduct)
 - NSW Ombudsman (concerning maladministration)
 - NSW Auditor General (concerning serious and substantial waste of public money)
 - Office of Local Government (concerning serious and substantial waste in local government and breaches of pecuniary interest obligations), and/or
 - Information and Privacy Commissioner (concerning government information contraventions).
- the council's internal audit function reports to the audit, risk and improvement committee on internal audit matters
- the internal audit function operates independently of the council
- the council's internal audit function operates according to an internal audit charter, which is consistent with the approved Model Internal Audit Charter contained in these Guidelines
- the council has appointed an appropriately skilled and eligible staff member to direct the council's internal audit activities or is part of a shared arrangement where a participating council has appointed a staff member to lead internal audit
- internal audit activities are conducted in accordance with the International Professional Practices Framework
- council's internal audit function operates according to the annual and four-year strategic work plans adopted by the governing body of the council
- the council provides the internal audit function with direct and unrestricted access to the general manager and other staff, council information and resources so it can fulfil its responsibilities, and
- at least once each council term (i.e. four years) the audit, risk and improvement committee conducts a review of the effectiveness of the council's internal audit function.

Further information on annual attestation requirements is detailed in the statutory framework section of these Guidelines.

Annual attestation

Commencing with the 2024-2025 annual report, the general manager will be required under the Local Government Regulation to attest each year in the council's annual report whether the council has complied with the following internal audit requirements:

- the council has an internal audit function that provides an independent unbiased assessment of the council's operations and risk and control activities

Further resources

The following resources may be useful to councils seeking more information about the establishment and operation of their internal audit function.

This is not an exhaustive list but provides a useful starting point for councils seeking to better understand internal audit, how it can be used by councils to improve performance, and practical tools, examples and templates to adapt for their own use.

International Professional Practices Framework (mandatory guidance) – Institute of Internal Auditors (2017)

Outlines the mandatory requirements for undertaking internal auditing under the International Professional Practices Framework.

Consists of four parts:

- Core Principles for the Professional Practice of Internal Auditing
- Definition of Internal Auditing
- Code of Ethics, and
- International Standards for the Professional Practice of Internal Auditing

International Professional Practices Framework (recommended guidance) – Institute of Internal Auditors (2017)

Provides detailed guidance on how to implement the International Professional Practice Framework.

Consists of two parts:

- Implementation Guide – assists an internal audit function to apply the standards and understand how compliance will be measured by the audit, risk and improvement committee, and

- Supplemental Guide (Practice Guides) – provides detailed processes and procedures for the internal audit function.

How can audit committee members add value? – PriceWaterhouseCoopers (2011)

Provides a checklist for measuring the performance of an internal audit function.

Internal Audit in Australia – Institute of Internal Auditors Australia (2016)

Provides an overview of the role of internal audit and the internal audit function, including:

- the different types of work plans that can be used to guide internal audit activity
- the skills, knowledge, experience and qualifications/certifications required of internal auditors
- performing, reporting and monitoring internal audits, and
- how to review the performance of an internal audit function, including performance measures that could be used

Practice Guide – Talent Management: Recruiting, Developing, Motivating and Retaining Great Team Members – Institute of Internal Auditors (2015)

Provides guidance on how to establish an effective internal audit team (for purchase from the Institute of Internal Auditors).

Quality Assessment Manual for the Internal Audit Activity – Institute of Internal Auditors (2017)

Outlines how the performance of council's internal audit function can be assessed both internally and externally against the International Professional Practices Framework.

Implementation

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Under the Local Government Act, all councils and joint organisations are required to have appointed an audit, risk and improvement committee by **4 June 2022**.

Councils and joint organisations have a further two years, until **1 July 2024**, to comply with these Guidelines.

Audit, risk and improvement committees

New committees

Councils and joint organisations are required under section 428A of the Local Government Act to appoint an audit, risk and improvement committee by **4 June 2022**.

Councils and joint organisations that do not have an audit, risk and improvement committee must take immediate steps to appoint a committee or to enter into an arrangement with another council or joint organisation to share a committee.

Existing committees

Councils and joint organisations that already have an audit, risk and improvement committee will already comply with the requirement under the Local Government Act to appoint a committee.

Transitional arrangements

Councils and joint organisations with existing committees have until **1 July 2024** to ensure the membership and operations of their committee comply with the requirements in these Guidelines.

Risk management framework

Councils and joint organisations have until **1 July 2024** to establish a risk management framework and to ensure it complies with these Guidelines.

Councils and joint organisations that already have a risk management framework are encouraged to comply sooner.

Internal audit function

Councils and joint organisations have until **1 July 2024** to establish an internal audit function and to ensure it complies with these Guidelines.

Councils and joint organisations that already have an internal audit function are encouraged to comply sooner.

Attestation

Commencing with the **2024-2025 annual report**, general managers of councils and executive officers of joint organisations will be required to publish an attestation statement each year in the annual report indicating whether, during the preceding financial year, the council's or joint organisation's audit, risk and improvement committee, risk management framework and internal audit function complied with these Guidelines.

Councils and joint organisations with an established audit, risk and improvement committee, internal audit function and/or risk management framework may wish to consider publishing attestation certificates in their annual reports sooner.

Appendices

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Appendix 1:

Attestation and exemption templates

Internal audit and risk management attestation statement for the [years] financial year for [council/joint organisation]

I am of the opinion that [council/joint organisation] has an audit, risk and improvement committee, risk management framework and internal audit function that operate in compliance with the following requirements except as may be otherwise provided below:

Audit, risk and improvement committee

	Requirement	Compliance
1.	[Council/joint organisation] has appointed an audit, risk and improvement committee that comprises of an independent chair and at least two independent members.	[compliant or non-compliant]
2.	The chair and all members of [council's/joint organisation's] audit, risk and improvement committee meet the relevant independence and eligibility criteria specified in the Departmental Chief Executive's Guidelines and have not exceeded the membership term limits specified in the Guidelines.	[compliant or non-compliant]
3.	[Council/joint organisation] has adopted terms of reference for its audit, risk and improvement committee that are consistent with the model terms of reference approved by the Departmental Chief Executive and the committee operates in accordance with the terms of reference.	[compliant or non-compliant]
4.	[Council/joint organisation] provides the audit, risk and improvement committee with direct and unrestricted access to the [general manager/executive officer] and other senior management and the information and resources necessary to exercise its functions.	[compliant or non-compliant]
5.	[Council's/joint organisation's] audit, risk and improvement committee exercises its functions in accordance with a four-year strategic work plan that has been endorsed by the governing body and an annual work plan that has been developed in consultation with the governing body and senior management.	[compliant or non-compliant]
6.	[Council's/joint organisation's] audit, risk and improvement committee provides the governing body with an annual assessment each year, and a strategic assessment each council term of the matters listed in section 428A of the <i>Local Government Act 1993</i> reviewed during that term.	[compliant or non-compliant - include date of last strategic assessment provided]
7.	The governing body of [council/ joint organisation] reviews the effectiveness of the audit, risk and improvement committee at least once each council term.	[compliant or non-compliant - include date of last review]

Membership

The chair and membership of the audit, risk and improvement committee are:

Chair	[name]	[start term date]	[finish term date]
Independent member	[name]	[start term date]	[finish term date]
Independent member	[name]	[start term date]	[finish term date]
[Councillor/board] member ¹	[name]	[start term date]	[finish term date]

Risk Management

	Requirement	Compliance
8.	[Council/joint organisation] has adopted a risk management framework that is consistent with current Australian risk management standard and that is appropriate for the [council's/joint organisation's] risks.	[compliant or non-compliant]
9.	[Council's/joint organisation's] audit, risk and improvement committee reviews the implementation of its risk management framework and provides a strategic assessment of its effectiveness to the governing body each council term.	[compliant or non-compliant - include date of last strategic assessment provided]

Internal Audit

	Requirement	Compliance
10.	[Council/joint organisation] has an internal audit function that reviews the council's operations and risk management and control activities.	[compliant or non-compliant]
11.	[Council's/joint organisation's] internal audit function reports to the audit, risk and improvement committee on internal audit matters.	[compliant or non-compliant]
12.	[Council's/joint organisation's] internal audit function is independent and internal audit activities are not subject to direction by the [council/joint organisation].	[compliant or non-compliant]
13.	[Council/joint organisation] has adopted an internal audit charter that is consistent with the model internal audit charter approved by the Departmental Chief Executive and the internal audit function operates in accordance with the charter.	[compliant or non-compliant]
14.	[Council/joint organisation] has appointed a member of staff who satisfies the independence and eligibility requirements specified in the Departmental Chief Executive's Guidelines to direct and coordinate internal audit activities or is part of a shared arrangement where a participating [council/joint organisation] has appointed a staff member to direct and coordinate internal audit activities for all participating councils.	[compliant or non-compliant]
15.	Internal audit activities are conducted in accordance with the International Professional Practices Framework.	[compliant or non-compliant]

	Requirement	Compliance
16.	[Council/joint organisation] provides the internal audit function with direct and unrestricted access to staff, the audit, risk and improvement committee, and the information and resources necessary to undertake internal audit activities.	[compliant or non-compliant]
17.	[Council's/joint organisation's] internal audit function undertakes internal audit activities in accordance with a four-year strategic work plan that has been endorsed by the governing body and an annual work plan that has been developed in consultation with the governing body and senior management.	[compliant or non-compliant]
18.	[Council's/joint organisation's] audit, risk and improvement committee reviews the effectiveness of the internal audit function and reports the outcome of the review to the governing body each council term.	[compliant or non-compliant - include date of last strategic assessment provided]

Exemptions from compliance

I advise that [council's/joint organisation's] [audit, risk and improvement committee/risk management/internal audit processes] (delete where relevant) have been exempted from compliance with the following requirements by the Departmental Chief Executive:

Non-compliance	Reason	Alternative measures being implemented	Exemption granted by the Departmental Chief Executive
[requirement]	[detailed description of reasons giving rise to the non-compliance]	[detailed description of the practicable alternative measures implemented to achieve equivalent level of assurance]	[yes/no]

These processes, including the alternative measures implemented, demonstrate that [council/joint organisation] has established and maintained frameworks, systems, processes and procedures for appropriately managing audit and risk within [council/joint organisation].

[signed]

[name and position]

[date]

Exemption from compliance with risk management and internal audit requirements

I am advised that [council/joint organisation] has not complied with the following requirements with respect to the operation of its [audit, risk and improvement committee/risk management/internal audit processes] (omit where relevant):

Requirement	Reason for non-compliance
[requirement]	[detailed description of reasons giving rise to the non-compliance]

I note that the following alternative arrangements have been implemented to achieve outcomes equivalent to the relevant requirement/s:

Summary of alternative arrangements	How they will achieve equivalent outcomes
[summary of alternative arrangement]	[summary of how they will achieve equivalent outcomes]

I am satisfied that these alternative arrangements will achieve outcomes equivalent to the requirement/s.

This exemption from compliance with the requirements listed above is valid for the [years] financial year.

[signed]

[name and position]

[date]

[Office of Local Government officer's contact details]

Appendix 2:

Audit, risk and improvement committee – role and responsibilities

Under section 428A of the Local Government Act, each council (including county councils and joint organisations) must have an audit, risk and improvement committee to independently review and provide advice to the council regarding the following aspects of the council's operations:

- compliance
- risk management
- fraud control
- financial management
- governance
- implementation of the strategic plan, delivery program and strategies
- service reviews
- collection of performance measurement data by the council, and
- any other matters prescribed by the regulation (i.e. internal audit).

The committee must also provide information to the council for the purpose of improving the council's performance of its functions.

The audit, risk and improvement committee and the council are to agree on the specific activities the committee is to review based on the council's needs, risks and business functions.

The following is a list of activities audit, risk and improvement committees and councils should consider as part of the committee's 'audit', 'risk' and 'improvement' roles based on the requirements of section 428A of the Local Government Act.

This is not an exhaustive list and audit, risk and improvement committees and councils are encouraged to carefully consider the council's business operations, service delivery, financial management processes, internal audit function, external accountability requirements, risk management framework, governance arrangements and integrated planning and reporting framework to maximise the advice and assistance the committee can provide to the council.

Audit

Internal audit

Section 428A(2)(i) of the Local Government Act

Principle

The council has an effective internal audit function and receives maximum value from its internal audit activities.

Committee's role

- Provide overall strategic oversight of internal audit activities.
- Act as a forum for communication between the governing body, general manager, senior management, the internal audit function and external audit.
- Coordinate as far as is practicable, the work programs of internal audit and other assurance and review functions.
- Advise the general manager and governing body of the council:
 - whether the council is providing the resources necessary to successfully deliver the internal audit function
 - if the council is complying with internal audit requirements, including compliance with the International Professional Practices Framework
 - if the council's internal audit charter is appropriate and whether the internal audit policies and procedures and audit/risk methodologies used by the council are suitable
 - of the strategic four-year work plan and annual work plan of internal audits to be undertaken by the council's internal audit function
 - if the council's internal audit activities are effective, including the performance of the head of the internal audit function and the internal audit function
 - of the findings and recommendations of internal audits conducted, and corrective actions needed to address issues raised

- of the implementation by the council of the corrective actions
- on the appointment of the head of the internal audit function and external providers, and
- if the internal audit function is structured appropriately and has sufficient skills and expertise to meet its responsibilities.

External audit

Principle

The council receives maximum value from its external audit activities.

Committee's role

- Act as a forum for communication between the governing body, general manager, senior management, the internal audit function and external audit.
- Coordinate as far as is practicable, the work programs of internal audit and external audit.
- Provide input and feedback on the financial statement and performance audit coverage proposed by external audit and provide feedback on the audit services provided.
- Review all external plans and reports in respect of planned or completed audits and monitor council's implementation of audit recommendations.
- Provide advice to the governing body and/or general manager on action taken on significant issues raised in relevant external audit reports and better practice guides.

Risk

Compliance framework

Section 428A(2)(a) of the Local Government Act

Principle

The council has an effective compliance framework that ensures it is complying with its legal obligations and other governance and contractual requirements when undertaking its functions.

Committee's role

Advise the general manager and governing body of the council of the adequacy and effectiveness of the council's compliance framework, including:

- if the council has appropriately considered legal and compliance risks as part of the council's risk management framework
- how the council manages its compliance with applicable laws, regulations, policies, procedures, codes, and contractual arrangements, and
- whether appropriate processes are in place to assess compliance.

Risk management

Section 428A(2)(b) of the Local Government Act

Principle

The council has an effective risk management framework and internal controls that successfully identify and manage the risks it faces.

Committee's role

Advise the general manager and governing body of the council on the following:

Risk management framework

- whether the council is providing the resources necessary to successfully implement its risk management framework

- if the council has in place a current and appropriate risk management framework that is consistent with the Australian risk management standard
- whether the council's risk management framework is adequate and effective for identifying and managing the risks the council faces, including those associated with individual projects, programs and other activities
- if risk management is integrated across all levels of the council and across all processes, operations, services, decision-making, functions and reporting
- of the adequacy of risk reports and documentation, for example, the council's risk register and risk profile
- whether a sound approach has been followed in developing risk management plans
- whether appropriate policies and procedures are in place for the management and exercise of delegations
- if the council has taken steps to embed a culture that is committed to ethical and lawful behaviour
- if there is a positive risk culture within the council and strong leadership that supports effective risk management
- of the adequacy of staff training and induction in risk management
- how the council's risk management approach impacts on the council's insurance arrangements
- of the effectiveness of the council's management of its assets, and
- of the effectiveness of business continuity arrangements, including business continuity plans, disaster recovery plans and the periodic testing of these plans.

Internal control framework

- if the internal controls in place are appropriate for the risk the council faces
- whether staff are informed of their responsibilities and processes and procedures to implement controls are complied with
- if the council's monitoring and review of controls, including policies and procedures, is sufficient, and

- if internal and external audit recommendations to correct internal control weaknesses are implemented appropriately.

Fraud and corruption control framework

Section 428A(2)(c) of the Local Government Act

Principle

The council has an effective fraud and corruption control framework in place that minimises the incidence of fraud and corruption.

Committee's role

Advise the general manager and governing body of the council of the adequacy and effectiveness of the council's fraud and corruption prevention framework and activities, including whether the council has:

- a fraud and corruption policy
- clearly defined responsibilities for managing fraud and corruption
- risk-based preventative and detective controls
- policies, systems and processes to respond to, investigate and report suspected fraud and corruption
- employee awareness/education measures
- robust third-party management systems
- appropriate processes and systems in place to capture and effectively investigate fraud-related information
- regular review of the fraud and corruption control framework and reporting, and
- implemented applicable guidance and other better practice measures by the Independent Commission Against Corruption.

Financial management framework

Section 428A(2)(d) of the Local Government Act

Principle

The council has an effective financial management framework, sustainable financial position and positive financial performance.

Committee's role

Advise the general manager and governing body of the council on the following:

External accountability and financial reporting framework

- if the council is complying with accounting standards and external accountability requirements
- of the appropriateness of the council's accounting policies and disclosures
- of the implications for the council of the findings of external audits and performance audits and the council's responses and implementation of recommendations
- whether the council's financial statement preparation procedures and timelines are sound
- the accuracy of the council's annual financial statements prior to external audit, including:
 - management compliance/representations
 - significant accounting and reporting issues
 - the methods used by the council to account for significant or unusual transactions and areas of significant estimates or judgements
 - appropriate management signoff on the statements
- if effective processes are in place to ensure financial information included in the council's annual report is consistent with signed financial statements.

Financial management framework

- if the council's financial management processes are adequate

- the adequacy of cash management and credit card use policies and procedures
- if there are adequate controls over financial processes, for example:
 - appropriate authorisation and approval of payments and transactions
 - adequate segregation of duties
 - timely reconciliation of accounts and balances
 - review of unusual and high value purchases.

Financial position and performance

- if policies and procedures for management review and consideration of the financial position and performance of the council are adequate.

Grants and tied funding policies and procedures

- if the council's grants and tied funding policies and procedures are sound.

Governance framework

Section 428A(2)(e) of the Local Government Act

Principle

The council has an effective governance framework to ensure it is appropriately directing and controlling the management of the council.

Committee's role

Advise the governing body and general manager if the council's governance framework is sound, including the council's:

- decision-making processes
- implementation of governance policies and procedures
- reporting lines and accountability
- assignment of key roles and responsibilities
- committee structure
- management oversight responsibilities
- human resources and performance management activities
- reporting and communication activities

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- information and communications technology (ICT) governance, and
- management and governance of the use of data, information and knowledge.

Improvement

Strategic planning

Section 428A(2)(f) of the Local Government Act

Principle

The council has an effective framework that ensures it achieves its strategic plans and objectives under the integrated planning and reporting (IP&R) framework.

Committee's role

Advise the general manager and governing body of the council:

- of the adequacy and effectiveness of the council's IP&R processes
- if appropriate reporting and monitoring mechanisms are in place to measure progress against objectives, and
- whether the council is successfully implementing and achieving its IP&R objectives and strategies.

Service reviews and business improvement

Section 428A(2)(g) and section 428A(3) of the Local Government Act

Principle

The council has an effective framework to ensure it is delivering services and conducting its business and functions to an expected standard.

Committee's role

- Act as a forum for communication and monitoring of any audits conducted by external bodies and the implementation of corrective actions (for example, NSW

government agencies, Commonwealth government agencies, insurance bodies).

- Advise the general manager and governing body of the council:
 - if the council has robust systems to set objectives and goals to determine and deliver appropriate levels of service to the community and business performance
 - if appropriate reporting and monitoring mechanisms are in place to measure service delivery to the community and overall performance, and
 - how the council can improve its service delivery and the council's performance of its business and functions generally.

Performance data and measurement

Section 428A(2)(h) of the Local Government Act

Principle

The council's performance management framework ensures the council can measure its performance and if it is achieving its strategic goals.

Committee's role

Advise the general manager and governing body of the council:

- if the council has a robust system to determine appropriate performance indicators to measure the achievement of its strategic objectives
- the performance indicators the council uses are effective, and
- of the adequacy of performance data collection and reporting.

Appendix 3:

Model terms of reference for audit, risk and improvement committees

Model terms of reference for local government audit, risk and improvement committees

[Council/joint organisation] has established an audit, risk and improvement committee in compliance with section 428A of the *Local Government Act 1993*, section (#16c) of the *Local Government (General) Regulation 2021* and the Departmental Chief Executive's *Guidelines for risk management and internal audit for local government in NSW*. These terms of reference set out the committee's objectives, authority, composition and tenure, roles and responsibilities, reporting and administrative arrangements.

Objective

The objective of [council's/joint organisation's] audit, risk and improvement committee is to provide independent assurance to [council/joint organisation] by monitoring, reviewing and providing advice about the [council's/joint organisation's] governance processes, compliance, risk management and control frameworks, external accountability obligations and overall performance.

Independence

The committee is to be independent to ensure it has no real or perceived bias or conflicts of interest that may interfere with its ability to act independently and to provide [council/joint organisation] with robust, objective and unbiased advice and assurance.

The committee is to have an advisory and assurance role only and is to exercise no administrative functions, delegated financial responsibilities or any management functions of the [council/joint organisation]. The committee will provide independent advice to the [council/joint organisation] that is informed by the [council's/joint organisation's] internal audit and risk management activities and information and advice provided by staff, relevant external bodies and subject matter experts.

The committee must always ensure it maintains a direct reporting line to and from the [council's/joint organisation's] internal audit function and act as a mechanism for internal audit to report to the governing body and the [general manager/executive officer] on matters affecting the performance of the internal audit function.

Authority

[Council/joint organisation] authorises the committee, for the purposes of exercising its responsibilities, to:

- access any information it needs from the [council/joint organisation]
- use any [council/joint organisation] resources it needs
- have direct and unrestricted access to the [general manager/executive officer] and senior management of the [council/joint organisation]
- seek the [general manager's/executive officer's] permission to meet with any other [council/joint organisation] staff member or contractor
- discuss any matters with the external auditor or other external parties
- request the attendance of any employee at committee meetings, and

- obtain external legal or other professional advice in line with councils' procurement policies.
[Detail any prior approval needed or pre-determined budget for costs].

Information and documents pertaining to the committee are confidential and are not to be made publicly available. The committee may only release [council/joint organisation] information to external parties that are assisting the committee to fulfil its responsibilities with the approval of the [general manager/executive officer], except where it is being provided to an external investigative or oversight agency for the purpose of informing that agency of a matter that may warrant its attention. [amend if documentation is to be made available to the public].

Composition and tenure

The committee consists of an independent chair and [two] independent members who have voting rights and [one non-voting councillor/board member], as required under the *Guidelines for risk management and internal audit for local government in NSW*.

The governing body is to appoint the chair and members of the committee. Current committee members are:

[name]	Independent chair (voting)
[name]	Independent member (voting)
[name]	Independent member (voting)
[name]	[Councillor/board] member (non-voting) (if applicable) [cannot be the mayor]

All committee members must meet the independence and eligibility criteria prescribed in the *Guidelines for risk management and internal audit for local government in NSW*.

Members will be appointed for up to a four-year term. Members can be reappointed for one further term, but the total period of continuous membership cannot exceed eight years. This includes any term as chair of the committee. Members who have served an eight-year term (either as a member or as chair) must have a two-year break from serving on the committee before being appointed again. To preserve the committee's knowledge of the [council/joint organisation], ideally, no more than one member should retire from the committee because of rotation in any one year.

The terms and conditions of each member's appointment to the committee are to be set out in a letter of appointment. New members will be thoroughly inducted to their role and receive relevant information and briefings on their appointment to assist them to meet their responsibilities.

Prior to approving the reappointment or extension of the chair's or an independent member's term, the governing body is to undertake an assessment of the chair's or committee member's performance. Reappointment of the chair or a committee member is also to be subject to that person still meeting the independence and eligibility requirements.

Members of the committee must possess and maintain a broad range of skills, knowledge and experience relevant to the operations, governance and financial management of the [council/joint organisation], the environment in which the [council/joint organisation] operates, and the contribution that the committee makes to the [council/joint organisation]. At least one member of the committee must have accounting or related financial management experience with an understanding of accounting and auditing standards in a local government environment. All members should have sufficient understanding of the [council's/joint organisation's] financial reporting responsibilities to be

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able to contribute to the committee's consideration of the [council's/joint organisation's] annual financial statements.

[Add any relevant details about shared arrangements, if applicable].

Role

As required under section 428A of the *Local Government Act 1993* (the Act), the role of the committee is to review and provide independent advice to the [council/joint organisation] regarding the following aspects of the [council's/joint organisation's] operations:

- compliance
- risk management
- fraud control
- financial management
- governance
- implementation of the strategic plan, delivery program and strategies
- service reviews
- collection of performance measurement data by the [council/joint organisation], and
- internal audit.

The committee must also provide information to the [council/joint organisation] for the purpose of improving the [council's/joint organisation's] performance of its functions.

The committee's specific audit, risk and improvement responsibilities under section 428A of the Act are outlined in Schedule 1 to this charter.

The committee will act as a forum for consideration of the [council's/joint organisation's] internal audit function and oversee its planning, monitoring and reporting to ensure it operates effectively.

The committee has no power to direct external audit or the way it is planned and undertaken but will act as a forum for the consideration of external audit findings.

The committee is directly responsible and accountable to the governing body for the exercise of its responsibilities. In carrying out its responsibilities, the committee must at all times recognise that primary responsibility for management of the [council/joint organisation] rests with the governing body and the [general manager/executive officer].

The responsibilities of the committee may be revised or expanded in consultation with, or as requested by, the governing body from time to time.

Responsibilities of members

Independent members

The chair and members of the committee are expected to understand and observe the requirements of the *Guidelines for risk management and internal audit for local government in NSW*. Members are also expected to:

- make themselves available as required to attend and participate in meetings
- contribute the time needed to review and understand information provided to it
- apply good analytical skills, objectivity and judgement

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- act in the best interests of the [council/joint organisation]
- have the personal courage to raise and deal with tough issues, express opinions frankly, ask questions that go to the fundamental core of the issue and pursue independent lines of inquiry
- maintain effective working relationships with the [council/joint organisation]
- have strong leadership qualities (chair)
- lead effective committee meetings (chair), and
- oversee the [council's/joint organisation's] internal audit function (chair).

[Councillor/board] members (if applicable)

To preserve the independence of the committee, the [councillor/board] member of the committee is a non-voting member. Their role is to:

- relay to the committee any concerns the governing body may have regarding the [council/joint organisation] and issues being considered by the committee
- provide insights into local issues and the strategic priorities of the [council/joint organisation] that would add value to the committee's consideration of agenda items
- advise the governing body (as necessary) of the work of the committee and any issues arising from it, and
- assist the governing body to review the performance of the committee.

Issues or information the councillor member raises with or provides to the committee must relate to the matters listed in Schedule 1 and issues being considered by the committee.

The [councillor/board] member of the committee must conduct themselves in a non-partisan and professional manner. The [councillor/board] member of the committee must not engage in any conduct that seeks to politicise the activities of the committee or the internal audit function or that could be seen to do so.

If the [councillor/board] member of the committee engages in such conduct or in any other conduct that may bring the committee and its work into disrepute, the chair of the committee may recommend to the [council/joint organisation], that the [councillor/board] member be removed from membership of the committee. Where the [council/joint organisation] does not agree to the committee chair's recommendation, the [council/joint organisation] must give reasons for its decision in writing to the chair.

Conduct

Independent committee members are required to comply with the [council's/joint organisation's] code of conduct.

Complaints alleging breaches of the [council's/joint organisation's] code of conduct by an independent committee member are to be dealt with in accordance with the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*. The [general manager/executive officer] must consult with the governing body before taking any disciplinary action against an independent committee member in response to a breach of the [council's/joint organisation's] code of conduct.

Conflicts of interest

Once a year, committee members must provide written declarations to the [council/joint organisation] stating that they do not have any conflicts of interest that would preclude them from being members of the committee. Independent committee members are 'designated persons' for the purposes of the [council's/joint organisation's] code of conduct and must also complete and submit returns of their interests.

Committee members and observers must declare any pecuniary or non-pecuniary conflicts of interest they may have in a matter being considered at the meeting at the start of each meeting or as soon as they become aware of the conflict of interest. Where a committee member or observer declares a pecuniary or a significant non-pecuniary conflict of interest, they must remove themselves from committee deliberations on the issue. Details of conflicts of interest declared at meetings must be appropriately minuted.

Standards

Committee members are to conduct their work in accordance with the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors and [\[current Australian risk management standard\]](#), where applicable.

Work plans

The work of the committee is to be thoroughly planned and executed. The committee must develop a strategic work plan every four years to ensure that the matters listed in Schedule 1 are reviewed by the committee and considered by the internal audit function when developing their risk-based program of internal audits. The strategic work plan must be reviewed at least annually to ensure it remains appropriate.

The committee may, in consultation with the governing body, vary the strategic work plan at any time to address new or emerging risks. The governing body may also, by resolution, request the committee to approve a variation to the strategic work plan. Any decision to vary the strategic work plan must be made by the committee.

The committee must also develop an annual work plan to guide its work, and the work of the internal audit function over the forward year.

The committee may, in consultation with the governing body, vary the annual work plan to address new or emerging risks. The governing body may also, by resolution, request the committee to approve a variation to the annual work plan. Any decision to vary the annual work plan must be made by the committee.

When considering whether to vary the strategic or annual work plans, the committee must consider the impact of the variation on the internal audit function's existing workload and the completion of pre-existing priorities and activities identified under the work plan.

Assurance reporting

The committee must regularly report to the [\[council/joint organisation\]](#) to ensure that it is kept informed of matters considered by the committee and any emerging issues that may influence the strategic direction of the [\[council/joint organisation\]](#) or the achievement of the [\[council's/joint organisation's\]](#) goals and objectives.

The committee will provide an update to the governing body and the [\[general manager/executive officer\]](#) of its activities and opinions after every committee meeting.

The committee will provide an annual assessment to the governing body and the [\[general manager/executive officer\]](#) on the committee's work and its opinion on how the [\[council/joint organisation\]](#) is performing.

The committee will provide a comprehensive assessment every council term of the matters listed in Schedule 1 to the governing body and the [\[general manager/executive officer\]](#).

The committee may at any time report to the governing body or the [general manager/executive officer] on any other matter it deems of sufficient importance to warrant their attention. The [mayor/chairperson] and the chair of the committee may also meet at any time to discuss issues relating to the work of the committee.

Should the governing body require additional information, a request for the information may be made to the chair by resolution. The chair is only required to provide the information requested by the governing body where the chair is satisfied that it is reasonably necessary for the governing body to receive the information for the purposes of performing its functions under the Local Government Act. Individual [councillors/board members] are not entitled to request or receive information from the committee.

Administrative arrangements

Meetings

The committee will meet at least [number (minimum of 4)] times per year, [including a special meeting to review the [council's/joint organisation's financial statements]].

The committee can hold additional meetings when significant unexpected issues arise, or if the chair is asked to hold an additional meeting by a committee member, the [general manager/executive officer] or the governing body.

Committee meetings can be held in person, by telephone or videoconference. Proxies are not permitted to attend meetings if a committee member cannot attend.

A quorum will consist of a majority of independent voting members. Where the vote is tied, the chair has the casting vote.

The chair of the committee will decide the agenda for each committee meeting. Each committee meeting is to be minuted to preserve a record of the issues considered and the actions and decisions taken by the committee.

The [general manager/executive officer] and the [head of the internal audit function] should attend committee meetings as non-voting observers. The external auditor (or their representative) is to be invited to each committee meeting as an independent observer. The chair can request the [council's/joint organisation's] [chief finance officer or equivalent], [head of risk management function or equivalent], [senior managers or equivalent], any [councillors/board members], any employee/contractor of the council and any subject matter expert to attend committee meetings. Where requested to attend a meeting, persons must attend the meeting where possible and provide any information requested. Observers have no voting rights and can be excluded from a meeting by the chair at any time.

The committee can hold closed meetings whenever it needs to discuss confidential or sensitive issues with only voting members of the committee present.

The committee must meet separately with the [head of the internal audit function] and the [council's/joint organisation's] external auditor at least once each year.

Dispute resolution

Members of the committee and the [council's/joint organisation's] management should maintain an effective working relationship and seek to resolve any differences they may have in an amicable and professional way by discussion and negotiation.

In the event of a disagreement between the committee and the [general manager/executive officer] or other senior managers, the dispute is to be resolved by the governing body.

Unresolved disputes regarding compliance with statutory or other requirements are to be referred to the Departmental Chief Executive in writing.

Secretariat

The [general manager/executive officer] will nominate a staff member to provide secretariat support to the committee. The secretariat will ensure the agenda for each meeting and supporting papers are circulated after approval from the chair at least [number] weeks before the meeting and ensure that minutes of meetings are prepared and maintained. Minutes must be approved by the chair and circulated within [agreed timeframe] of the meeting to each member.

Resignation and dismissal of members

Where the chair or a committee member is unable to complete their term or does not intend to seek reappointment after the expiry of their term, they should give [agreed timeframe] notice to the chair and the governing body prior to their resignation to allow the [council/joint organisation] to ensure a smooth transition to a new chair or committee member.

The governing body can, by resolution, terminate the appointment of the chair or an independent committee member before the expiry of their term where that person has:

- breached the council's code of conduct
- performed unsatisfactorily or not to expectations
- declared, or is found to be in, a position of a conflict of interest which is unresolvable
- been declared bankrupt or found to be insolvent
- experienced an adverse change in business status
- been charged with a serious criminal offence
- been proven to be in serious breach of their obligations under any legislation, or
- experienced an adverse change in capacity or capability.

The position of a [councillor/board] member on the committee can be terminated at any time by the governing body by resolution.

Review arrangements

At least once every council term, the governing body must review or arrange for an external review of the effectiveness of the committee.

These terms of reference must be reviewed annually by the committee and once each council term by the governing body. Any substantive changes are to be approved by the governing body.

Further information

For further information on [council's/joint organisation's] audit, risk and improvement committee, contact [name] on [email address] or by phone [phone number].

Reviewed by chair of the audit, risk and improvement committee

[signed]

[date]

Guidelines for Risk Management and Internal Audit for Local Government in NSW issued under section 23A of the *Local Government Act 1993*

Reviewed by [council/joint organisation] in accordance with a resolution of the governing body.

[signed]

[date]

[resolution reference]

Next review date: [date]

DRAFT

Schedule 1 – Audit, risk and improvement committee responsibilities

[Note: each council/joint organisation is to determine the responsibilities of its committee related to each matter listed in section 428A of the Local Government Act 1993 and list them in Schedule 1 to the committee's terms of reference. Suggested responsibilities are provided below and further detailed in core requirement 1 and Appendix 2 of these Guidelines.]

Audit

Internal audit

- Provide overall strategic oversight of internal audit activities
- Act as a forum for communication between the governing body, [general manager/executive officer], senior management, the internal audit function and external audit
- Coordinate, as far as is practicable, the work programs of internal audit and other assurance and review functions
- Review and advise the [council/joint organisation]:
 - on whether the [council/joint organisation] is providing the resources necessary to successfully deliver the internal audit function
 - if the [council/joint organisation] is complying with internal audit requirements, including conformance with the International Professional Practices Framework
 - if the [council's/joint organisation's] internal audit charter is appropriate and whether the internal audit policies and procedures and audit/risk methodologies used by the [council/joint organisation] are suitable
 - of the strategic four-year work plan and annual work plan of internal audits to be undertaken by the [council's/joint organisation's] internal audit function
 - if the [council's/joint organisation's] internal audit activities are effective, including the performance of the head of the internal audit function and the internal audit function
 - of the findings and recommendations of internal audits conducted, and corrective actions needed to address issues raised
 - of the implementation by the [council/joint organisation] of these corrective actions
 - on the appointment of the head of the internal audit function and external providers, and
 - if the internal audit function is structured appropriately and has sufficient skills and expertise to meet its responsibilities

External audit

- Act as a forum for communication between the governing body, [general manager/executive officer], senior management, the internal audit function and external audit
- Coordinate as far as is practicable, the work programs of internal audit and external audit
- Provide input and feedback on the financial statement and performance audit coverage proposed by external audit and provide feedback on the audit services provided
- Review all external plans and reports in respect of planned or completed audits and monitor council's implementation of audit recommendations
- Provide advice to the governing body and/or [general manager/executive officer] on action taken on significant issues raised in relevant external audit reports and better practice guides

Risk

Risk management

Review and advise the [council/joint organisation]:

- if the [council's/joint organisation's] has in place a current and appropriate risk management framework that is consistent with the Australian risk management standard
- whether the [council/joint organisation] is providing the resources necessary to successfully implement its risk management framework
- whether the [council's/joint organisation's] risk management framework is adequate and effective for identifying and managing the risks the [council/joint organisation] faces, including those associated with individual projects, programs and other activities
- if risk management is integrated across all levels of the [council/joint organisation] and across all processes, operations, services, decision-making, functions and reporting
- of the adequacy of risk reports and documentation, for example, the [council's/joint organisation's] risk register and risk profile
- whether a sound approach has been followed in developing risk management plans for major projects or undertakings
- whether appropriate policies and procedures are in place for the management and exercise of delegations
- if the [council/joint organisation] has taken steps to embed a culture which is committed to ethical and lawful behaviour
- if there is a positive risk culture within the [council/joint organisation] and strong leadership that supports effective risk management
- of the adequacy of staff training and induction in risk management
- how the [council's/joint organisation's] risk management approach impacts on the [council's/joint organisation's] insurance arrangements
- of the effectiveness of the [council's/joint organisation's] management of its assets, and
- of the effectiveness of business continuity arrangements, including business continuity plans, disaster recovery plans and the periodic testing of these plans.

Internal controls

Review and advise the [council/joint organisation]:

- whether the [council's/joint organisation's] approach to maintaining an effective internal audit framework, including over external parties such as contractors and advisors, is sound and effective
- whether the [council/joint organisation] has in place relevant policies and procedures and that these are periodically reviewed and updated
- whether appropriate policies and procedures are in place for the management and exercise of delegations
- whether staff are informed of their responsibilities and processes and procedures to implement controls are complied with
- if the [council's/joint organisation's] monitoring and review of controls is sufficient, and
- if internal and external audit recommendations to correct internal control weaknesses are implemented appropriately

Compliance

Review and advise the [council/joint organisation] of the adequacy and effectiveness of the [council's/joint organisation's] compliance framework, including:

- if the [council/joint organisation] has appropriately considered legal and compliance risks as part of the [council's/joint organisation's] risk management framework
- how the [council/joint organisation] manages its compliance with applicable laws, regulations, policies, procedures, codes, and contractual arrangements, and
- whether appropriate processes are in place to assess compliance.

Fraud and corruption

Review and advise the [council/joint organisation] of the adequacy and effectiveness of the [council's/joint organisation's] fraud and corruption prevention framework and activities, including whether the [council/joint organisation] has appropriate processes and systems in place to capture and effectively investigate fraud-related information.

Financial management

Review and advise the [council/joint organisation]:

- if the [council/joint organisation] is complying with accounting standards and external accountability requirements
- of the appropriateness of the [council's/joint organisation's] accounting policies and disclosures
- of the implications for the [council/joint organisation] of the findings of external audits and performance audits and the [council's/joint organisation's] responses and implementation of recommendations
- whether the [council's/joint organisation's] financial statement preparation procedures and timelines are sound
- the accuracy of the [council's/joint organisation's] annual financial statements prior to external audit, including:
 - management compliance/representations
 - significant accounting and reporting issues
 - the methods used by the [council/joint organisation] to account for significant or unusual transactions and areas of significant estimates or judgements
 - appropriate management signoff on the statements
- if effective processes are in place to ensure financial information included in the [council's/joint organisation's] annual report is consistent with signed financial statements
- if the [council's/joint organisation's] financial management processes are adequate
- the adequacy of cash management policies and procedures
- if there are adequate controls over financial processes, for example:
 - appropriate authorisation and approval of payments and transactions
 - adequate segregation of duties
 - timely reconciliation of accounts and balances
 - review of unusual and high value purchases
- if policies and procedures for management review and consideration of the financial position and performance of the [council/joint organisation] are adequate
- if the [council's/joint organisation's] grants and tied funding policies and procedures are sound.

Governance

Review and advise the [council/joint organisation] regarding its governance framework, including the [council's/joint organisation's]:

- decision-making processes
- implementation of governance policies and procedures
- reporting lines and accountability
- assignment of key roles and responsibilities
- committee structure
- management oversight responsibilities
- human resources and performance management activities
- reporting and communication activities
- information and communications technology (ICT) governance, and
- management and governance of the use of data, information and knowledge

Improvement

Strategic planning

Review and advise the [council/joint organisation]:

- of the adequacy and effectiveness of the [council's/joint organisation's] integrated, planning and reporting (IP&R) processes
- if appropriate reporting and monitoring mechanisms are in place to measure progress against objectives, and
- whether the [council/joint organisation] is successfully implementing and achieving its IP&R objectives and strategies.

Service reviews and business improvement

- Act as a forum for communication and monitoring of any audits conducted by external bodies and the implementation of corrective actions (for example, NSW government agencies, Commonwealth government agencies, insurance bodies)
- Review and advise the [council/joint organisation]:
 - If the [council/joint organisation] has robust systems to set objectives and goals to determine and deliver appropriate levels of service to the community and business performance
 - if appropriate reporting and monitoring mechanisms are in place to measure service delivery to the community and overall performance, and
 - how the [council/joint organisation] can improve its service delivery and the [council's/joint organisation's] performance of its business and functions generally

Performance data and measurement

Review and advise the [council/joint organisation]:

- if the [council/joint organisation] has a robust system to determine appropriate performance indicators to measure the achievement of its strategic objectives
- if the performance indicators the [council/joint organisation] uses are effective, and
- of the adequacy of performance data collection and reporting.

Appendix 4:

Example risk management policy

Example risk management policy

Purpose

The purpose of this policy is to express [council's/joint organisation's] commitment to implementing organisation-wide risk management principles, systems and processes that ensure the consistent, efficient and effective assessment of risk in all [council's/joint organisation's] planning, decision-making and operational processes.

Risk management framework

[Council/joint organisation] provides critical services and infrastructure to the residents, ratepayers and visitors to [area]. [Council/joint organisation] also has service agreements and contractual obligations with government and non-government agencies and organisations and has its own strategic goals and objectives that it seeks to achieve on behalf of the [area] community.

It is therefore incumbent on [council/joint organisation] to understand the internal and external risks that may impact the delivery of these services, contracts and strategic objectives and have processes in place to identify, mitigate, manage and monitor those risks to ensure the best outcome for [council's/joint organisation's], staff and the community. It is also our responsibility to ensure the efficient, effective and ethical use of resources and services by ratepayers, residents, staff and visitors.

[Council/joint organisation] has developed a risk management framework consistent with [Australian standard] to assist it to identify, treat, monitor and review all risks to its operations and strategic objectives and apply appropriate internal controls.

[Council/joint organisation] is committed to the principles, framework and process of managing risk as outlined in [Australian standard] and commits to fully integrating risk management within the [council/joint organisation] and applying it to all decision-making, functions, services and activities of the [council/joint organisation] in accordance with our statutory requirements.

Responsibilities

[Council/joint organisation] aims to create a positive risk management culture where risk management is integrated into all everyday activities and managing risks is an integral part of governance, good management practice and decision-making at [council/joint organisation]. It is the responsibility of every staff member and business area to observe and implement this policy and [council's/joint organisation's] risk management framework.

All staff are responsible for identifying and managing risk within their work areas. Key responsibilities include:

- being familiar with, and understanding, the principles of risk management
- complying with all policies, procedures and practices relating to risk management
- alerting management to risks that exist within their area, and
- performing any risk management activities assigned to them as part of their daily role.

Risk management is a core responsibility for all senior staff/management at [council/organisation]. In addition to their responsibilities as staff members, senior staff/management are responsible for:

- ensuring all staff manage their risks within their own work areas. Risks should be anticipated, and reasonable protective measures taken
- encouraging openness and honesty in the reporting and escalation of risks
- ensuring all staff have the appropriate capability to perform their risk management roles
- reporting to the [general manager/executive officer] on the status of risks and controls, and
- identifying and communicating improvements in [council's/joint organisation's] risk management practices to [council's/joint organisation's] risk management function.

[Council's/joint organisation's] risk management function is available to support staff in undertaking their risk management activities.

To ensure [council/joint organisation] is effectively managing its risk and complying with its statutory obligations, [council's/joint organisation's] audit, risk and improvement committee and internal audit function is responsible for reviewing the [council's/joint organisation's]:

- risk management processes and procedures
- risk management strategies for major projects or undertakings
- control environment and insurance arrangements
- business continuity planning arrangements, and
- fraud control plan.

Monitoring and Review

[Council/joint organisation] is committed to continually improving its ability to manage risk. [Council/joint organisation] will review this policy and its risk management framework at least annually to ensure it continues to meet the requirements of the *Local Government Act 1993*, the *Local Government (General) Regulation 2021*, and the [council's/joint organisation's] requirements.

Further information

For further information on [council's/joint organisation's] risk management policy, framework and process, contact [name] on [email address] or by phone [phone number].

[signed – General Manager/Executive officer]

[name]

[date]

[review date]

Appendix 5:

Model internal audit charter

Model internal audit charter for local government

[Council/joint organisation] has established the [name of internal audit function] as a key component of the [council's/joint organisation's] governance and assurance framework, in compliance with the Departmental Chief Executive's *Guidelines for risk management and internal audit for local government in NSW*. This charter provides the framework for the conduct of the [name of internal audit function] in the [council/joint organisation] and has been approved by the governing body taking into account the advice of the [council's/joint organisation's] audit, risk and improvement committee.

Purpose of internal audit

Internal audit is an independent, objective assurance and consulting activity designed to add value and improve the [council's/joint organisation's] operations. It helps the [council/joint organisation] accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes¹.

Internal audit provides an independent and objective review and advisory service to provide advice to the governing body, [general manager/executive officer] and audit, risk and improvement committee about the [council's/joint organisation's] governance processes, risk management and control frameworks and its external accountability obligations. It also assists the [council/joint organisation] to improve its business performance.

Independence

[Council's/joint organisation's] [name of internal audit function] is to be independent of the [council/joint organisation] so it can provide an unbiased assessment of the [council's/joint organisation's] operations and risk and control activities.

[Name of internal audit function] reports functionally to the [council's/joint organisation's] audit, risk and improvement committee on the results of completed audits, and for strategic direction and accountability purposes, and reports administratively to the [general manager/executive officer] to facilitate day-to-day operations. Internal audit activities are not subject to direction by the [council/joint organisation] and the [council's/joint organisation's] management has no role in the exercise of the [council's/joint organisation's] internal audit activities.

The audit, risk and improvement committee is responsible for communicating any internal audit issues or information to the governing body. Should the governing body require additional information, a request for the information may be made to the chair by resolution. The chair is only required to provide the information requested by the governing body where the chair is satisfied that it is reasonably necessary for the governing body to receive the information for the purposes of performing its functions under the Local Government Act. Individual [councillors/board members] are not entitled to request or receive information from the committee.

¹ As defined by the International Standards for the Professional Practice of Internal Auditing (2017)

[Detail any delegations made by the general manager/executive officer regarding their internal audit responsibilities].

The [general manager/executive officer] must consult with the chair of the [council's/joint organisation's] audit, risk and improvement committee before appointing or making decisions affecting the employment of the [head of internal audit function]. If the [head of internal audit function] is dismissed, the [general manager/executive officer] must report the reasons for their dismissal to the governing body.

Where the chair of the [council's/joint organisation's] audit, risk and improvement committee has any concerns about the treatment of the [head of internal audit function], or any action taken that may compromise their ability to undertake their functions independently, they can report their concerns to the governing body.

The [head of internal audit function] is to confirm at least annually to the audit, risk and improvement committee the independence of internal audit activities from the [council/joint organisation].

Authority

[Council/joint organisation] authorises the [name of internal audit function] to have full, free and unrestricted access to all functions, premises, assets, personnel, records and other documentation and information that the [head of internal audit function] considers necessary for the [name of the internal audit function] to undertake its responsibilities.

All records, documentation and information accessed while undertaking internal audit activities are to be used solely for the conduct of those activities. The [head of internal audit function] and individual internal audit staff are responsible and accountable for maintaining the confidentiality of the information they receive when undertaking their work.

All internal audit documentation is to remain the property of [council/joint organisation], including where internal audit services are performed by an external third-party provider.

Information and documents pertaining to the [name of the internal audit function] are not to be made publicly available. The [name of the internal audit function] may only release [council/joint organisation] information to external parties that are assisting the [name of the internal audit function] to undertake its responsibilities with the approval of the [general manager/executive officer], except where it is being provided to an external investigative or oversight agency for the purpose of informing that agency of a matter that may warrant its attention.

Role

The [name of internal audit function] is to support the [council's/joint organisation's] audit, risk and improvement committee to review and provide independent advice to the [council/joint organisation] in accordance with section 428A of the *Local Government Act 1993*. This includes conducting internal audits of [council/joint organisation] and monitoring the implementation of corrective actions.

The [name of internal audit function] is to also play an active role in:

- developing and maintaining a culture of accountability and integrity
- facilitating the integration of risk management into day-to-day business activities and processes, and
- promoting a culture of high ethical standards.

[Name of internal audit function] has no direct authority or responsibility for the activities it reviews. [Name of internal audit function] has no responsibility for developing or implementing procedures or systems and does not prepare records or engage in [council/joint organisation] functions or activities (except in carrying out its own functions).

[Head of internal audit function]

Option 1: In-house internal audit function

[Council's/joint organisation's] [name of internal audit function] is to be led by a member of [council's/joint organisation's] staff with sufficient skills, knowledge and experience to ensure it fulfils its role and responsibilities to the [council/joint organisation] and the audit, risk and improvement committee. The [head of internal audit function] must be independent, impartial, unbiased and objective when performing their work and free from any conflicts of interest.

Responsibilities of the [head of internal audit function] include:

- managing the day-to-day activities of the [name of internal audit function]
- managing the [council's/joint organisation's] internal audit budget
- supporting the operation of the [council's/joint organisation's] audit, risk and improvement committee
- approving internal audit project plans, conducting or supervising audits and assessments and providing independent advice to the audit, risk and improvement committee
- monitoring the [council's/joint organisation's] implementation of corrective actions that arise from the findings of audits
- implementing the audit, risk and improvement committee's annual work plan and four-year strategic work plan
- ensuring the [council's/joint organisation's] internal audit activities comply with the *Guidelines for risk management and internal audit for local government in NSW*, and
- contract management and oversight of supplementary external providers (where appropriate).

[Details of any dual responsibilities and independence safeguards]

[Details of any shared arrangements]

Option 2: Outsourced internal audit function

[Council's/joint organisation's] [name of internal audit function] is to be led by a member of [council's/joint organisation's] staff with sufficient skills, knowledge and experience to ensure it fulfils its role and responsibilities to the [council/joint organisation] and the audit, risk and improvement committee. The [head of internal audit function] must be independent, impartial, unbiased and objective when performing their work and free from any conflicts of interest.

Responsibilities of the [head of internal audit function] include:

- contract management
- managing the internal audit budget
- ensuring the external provider completes internal audits in line with the audit, risk and improvement committee's annual work plan and four-year strategic work plan
- forwarding audit reports by the external provider to the audit, risk and improvement committee
- acting as a liaison between the external provider and the audit, risk and improvement committee
- monitoring the [council's/joint organisation's] implementation of corrective actions that arise from the findings of audits and reporting progress to the audit, risk and improvement committee, and

- assisting the audit, risk and improvement committee to ensure the [council's/joint organisation's] internal audit activities comply with the *Guidelines for risk management and internal audit for local government in NSW*.

[Details of any dual responsibilities and independence safeguards]

[Details of any shared arrangements]

[Name of internal audit team]

Option 1: In-house internal audit team

Members of the [name of internal audit function] are responsible to the [head of internal audit function].

Individuals that perform internal audit activities for [council/joint organisation] must have:

- an appropriate level of understanding of the [council's/joint organisation's] culture, systems and processes
- the skills, knowledge and experience necessary to conduct internal audit activities in the [council/joint organisation]
- effective interpersonal and communication skills to ensure they can engage with [council/joint organisation] staff effectively and collaboratively, and
- honesty, integrity and diligence.

[Details of any dual responsibilities and independence safeguards]

[Details of any shared arrangements]

Option 2: Out-sourced internal audit team

[Council/joint organisation] is to contract an external third-party provider to undertake its internal audit activities. To ensure the independence of the external provider, the [head of internal audit function] is to ensure the external provider:

- does not conduct any audits on specific [council/joint organisation] operations or areas that they have worked on within the last two years
- is not the same provider conducting the [council's/joint organisation's] external audit
- is not the auditor of any contractors of the [council/joint organisation] that may be subject to the internal audit, and
- can meet the [council's/joint organisation's] obligations under the *Guidelines for risk management and internal audit for local government in NSW*.

The [head of internal audit function] must consult with the audit, risk and improvement committee and [general manager/executive officer] regarding the appropriateness of the skills, knowledge and experience of any external provider before they are engaged by the [council/joint organisation].

[Details of any shared arrangements].

Performing internal audit activities

The work of the [name of internal audit function] is to be thoroughly planned and executed. The [council's/joint organisation's] audit, risk and improvement committee must develop a strategic work plan every four years to ensure that the matters listed in Schedule 1 are reviewed by the committee and considered by the internal audit function when developing their risk-based program of internal audits. The strategic work plan must be reviewed at least annually to ensure it remains appropriate.

The committee must also develop an annual work plan to guide the work of the internal audit function over the forward year.

All internal audit activities are to be performed in a manner that is consistent with relevant professional standards including the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors and [\[current Australian risk management standard\]](#).

The [\[head of internal audit function\]](#) is to provide the findings and recommendations of internal audits to the audit, risk and improvement committee at the end of each audit. Each report is to include a response from the relevant senior manager.

The [\[head of internal audit function\]](#) is to establish an ongoing monitoring system to follow up [\[council's/joint organisation's\]](#) progress in implementing corrective actions.

The [\[general manager/executive officer\]](#), in consultation with the audit, risk and improvement committee, is to develop and maintain policies and procedures to guide the operation of the [\[council's/joint organisation's\]](#) [\[name of internal audit function\]](#).

The [\[head of internal audit function\]](#) is to ensure that the audit, risk and improvement committee is advised at each of the committee's meetings of the internal audit activities completed during that quarter, progress in implementing the annual work plan and progress made implementing corrective actions.

Conduct

Internal audit personnel must comply with the [\[council's/joint organisation's\]](#) code of conduct. Complaints about breaches of [\[council's/joint organisation's\]](#) code of conduct by internal audit personnel are to be dealt with in accordance with the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*. The [\[general manager/executive officer\]](#) must consult with the [\[council's/joint organisation's\]](#) audit, risk and improvement committee before any disciplinary action is taken against the [\[head of internal audit function\]](#) in response to a breach of the [\[council's/joint organisation's\]](#) code of conduct.

Internal auditors must also comply with the Code of Ethics for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors.

Administrative arrangements

Audit, risk and improvement committee meetings

The [\[head of internal audit function\]](#) will attend audit, risk and improvement committee meetings as an independent non-voting observer. The [\[head of internal audit function\]](#) can be excluded from meetings by the committee at any time.

The [\[head of internal audit function\]](#) must meet separately with the audit, risk and improvement committee at least once per year.

The [\[head of internal audit function\]](#) can meet with the chair of the audit, risk and improvement committee at any time, as necessary, between committee meetings.

External audit

Internal and external audit activities will be coordinated to help ensure the adequacy of overall audit coverage and to minimise duplication of effort.

Guidelines for Risk Management and Internal Audit for Local Government in NSW issued under section 23A of the *Local Government Act 1993*

Periodic meetings and contact between internal and external audit shall be held to discuss matters of mutual interest and to facilitate coordination.

External audit will have full and free access to all internal audit plans, working papers and reports.

Dispute resolution

[Name of internal audit function] should maintain an effective working relationship with the [council/joint organisation] and the audit, risk and improvement committee and seek to resolve any differences they may have in an amicable and professional way by discussion and negotiation.

In the event of a disagreement between the [name of internal audit function] and the [council/joint organisation], the dispute is to be resolved by the [general manager/executive officer] and/or the audit, risk and improvement committee. Disputes between the [name of internal audit function] and the audit, risk and improvement committee are to be resolved by the governing body.

Unresolved disputes regarding compliance with statutory or other requirements are to be referred to the Departmental Chief Executive in writing.

Review arrangements

The [council's/joint organisation's] audit, risk and improvement committee must review the performance of the internal audit function each year and report its findings to the governing body. A strategic review of the performance of the [name of internal audit function] must be conducted each council term that considers the views of an external party with a strong knowledge of internal audit and reported to the [governing body/board].

This charter is to be reviewed annually by the committee and once each council term by the governing body. Any substantive changes are to be approved by the governing body.

Further information

For further information on [council's/joint organisation's] internal audit activities, contact [name] on [email address] or by phone [phone number].

Reviewed by [head of internal audit function]

[sign and date]

Reviewed by chair of the [council's/joint organisation's] audit, risk and improvement committee

[sign and date]

Reviewed by [general manager/executive officer]

[sign and date]

Reviewed by [council/joint organisation] in accordance with a resolution of the governing body

[sign and date]

[resolution reference]

Schedule 1 – internal audit function responsibilities

[Note: each council/joint organisation is to determine the responsibilities of its internal audit function in relation to each matter listed in section 428A of the Local Government Act 1993 and list them in Schedule 1 to the council's/joint organisation's internal audit charter. Suggested responsibilities are provided below and further detailed in core requirement 3 and Appendix 2 of these Guidelines.]

Audit

Internal audit

- Conduct internal audits as directed by the [council's/joint organisation's] audit, risk and improvement committee.
- Implement the [council's/joint organisation's] annual and four-year strategic internal audit work plans.
- Monitor the implementation by the [council/joint organisation] of corrective actions.
- Assist the [council/joint organisation] to develop and maintain a culture of accountability and integrity.
- Facilitate the integration of risk management into day-to-day business activities and processes.
- Promote a culture of high ethical standards.

External audit

- Provide input and feedback on the financial statement and performance audit coverage proposed by external audit and provide feedback on the audit services provided.
- Review all external plans and reports in respect of planned or completed audits and monitor the [council's/joint organisation's] implementation of audit recommendations.
- Provide advice on action taken on significant issues raised in relevant external audit reports and better practice guides.

Risk

Risk management

Review and advise:

- if the [council's/joint organisation's] has in place a current and appropriate risk management framework that is consistent with the Australian risk management standard
- whether the [council's/joint organisation's] risk management framework is adequate and effective for identifying and managing the risks the [council/joint organisation] faces, including those associated with individual projects, programs and other activities
- if risk management is integrated across all levels of the [council/joint organisation] and across all processes, operations, services, decision-making, functions and reporting
- of the adequacy of risk reports and documentation, for example, the [council's/joint organisation's] risk register and risk profile
- whether a sound approach has been followed in developing risk management plans for major projects or undertakings
- whether appropriate policies and procedures are in place for the management and exercise of delegations

Guidelines for Risk Management and Internal Audit for Local Government in NSW issued under section 23A of the Local Government Act 1993

- if the [council/joint organisation] has taken steps to embed a culture which is committed to ethical and lawful behaviour
- if there is a positive risk culture within the [council/joint organisation] and strong leadership that supports effective risk management
- of the adequacy of staff training and induction in risk management
- how the [council's/joint organisation's] risk management approach impacts on the [council's/joint organisation's] insurance arrangements
- of the effectiveness of the [council's/joint organisation's] management of its assets, and
- of the effectiveness of business continuity arrangements, including business continuity plans, disaster recovery plans and the periodic testing of these plans.

Internal controls

Review and advise:

- whether the [council's/joint organisation's] approach to maintaining an effective internal audit framework, including over external parties such as contractors and advisors, is sound and effective
- whether the [council/joint organisation] has in place relevant policies and procedures and that these are periodically reviewed and updated
- whether appropriate policies and procedures are in place for the management and exercise of delegations
- whether staff are informed of their responsibilities and processes and procedures to implement controls are complied with
- if the [council's/joint organisation's] monitoring and review of controls is sufficient, and
- if internal and external audit recommendations to correct internal control weaknesses are implemented appropriately.

Compliance

Review and advise of the adequacy and effectiveness of the [council's/joint organisation's] compliance framework, including:

- if the [council/joint organisation] has appropriately considered legal and compliance risks as part of the [council's/joint organisation's] risk management framework
- how the [council/joint organisation] manages its compliance with applicable laws, regulations, policies, procedures, codes, and contractual arrangements, and
- whether appropriate processes are in place to assess compliance.

Fraud and corruption

Review and advise of the adequacy and effectiveness of the [council's/joint organisation's] fraud and corruption prevention framework and activities, including whether the [council/joint organisation] has appropriate processes and systems in place to capture and effectively investigate fraud-related information.

Financial management

Review and advise:

- if the [council/joint organisation] is complying with accounting standards and external accountability requirements
- of the appropriateness of the [council's/joint organisation's] accounting policies and disclosures

- of the implications for the [council/joint organisation] of the findings of external audits and performance audits and the [council's/joint organisation's] responses and implementation of recommendations
- whether the [council's/joint organisation's] financial statement preparation procedures and timelines are sound
- the accuracy of the [council's/joint organisation's] annual financial statements prior to external audit, including:
 - management compliance/representations
 - significant accounting and reporting issues
 - the methods used by the [council/joint organisation] to account for significant or unusual transactions and areas of significant estimates or judgements
 - appropriate management signoff on the statements
- if effective processes are in place to ensure financial information included in the [council's/joint organisation's] report is consistent with signed financial statements
- if the [council's/joint organisation's] financial management processes are adequate
- the adequacy of cash management policies and procedures
- if there are adequate controls over financial processes, for example:
 - appropriate authorisation and approval of payments and transactions
 - adequate segregation of duties
 - timely reconciliation of accounts and balances
 - review of unusual and high value purchases
- if policies and procedures for management review and consideration of the financial position and performance of the [council/joint organisation] are adequate
- if the [council's/joint organisation's] grants and tied funding policies and procedures are sound.

Governance

Review and advise of the adequacy of the [council/joint organisation] governance framework, including the [council's/joint organisation's]:

- decision-making processes
- implementation of governance policies and procedures
- reporting lines and accountability
- assignment of key roles and responsibilities
- committee structure
- management oversight responsibilities
- human resources and performance management activities
- reporting and communication activities
- information and communications technology (ICT) governance, and
- management and governance of the use of data, information and knowledge.

Improvement

Strategic planning

Review and advise:

- of the adequacy and effectiveness of the [council's/joint organisation's] integrated, planning and reporting (IP&R) processes

- if appropriate reporting and monitoring mechanisms are in place to measure progress against objectives, and
- whether the [council/joint organisation] is successfully implementing and achieving its IP&R objectives and strategies.

Service reviews and business improvement

Review and advise:

- if the [council/joint organisation] has robust systems to set objectives and goals to determine and deliver appropriate levels of service to the community and business performance
- if appropriate reporting and monitoring mechanisms are in place to measure service delivery to the community and overall performance, and
- how the [council/joint organisation] can improve its service delivery and the [council's/joint organisation's] performance of its business and functions generally

Performance data and measurement

Review and advise:

- if the [council/joint organisation] has a robust system to determine appropriate performance indicators to measure the achievement of its strategic objectives
- if the performance indicators the [council/joint organisation] uses are effective, and
- of the adequacy of performance data collection and reporting.



**9.4.6. December 2022 Quarterly Budget Review**

Attachments:	1. QBR Report Dec 2022 [9.4.6.1 - 10 pages]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Josh Hogan (Finance Manager)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.

PURPOSE

Council is required under Clause 203 of the Local Government (General) Regulation 2005 to revise the estimates at the end of the September, December and March quarters.

The aim of these reviews is to:

- include new and/or expanded projects and programs as adopted by Council in the budget, along with their related funding source, and
- to adjust original estimates in line with actual receipts and expenditures to date.

When completing Budget Reviews, staff aim to ensure that the net impact of all the proposed changes maintain or improve the adopted budget.

OFFICER'S RECOMMENDATION

Council adopts the proposed changes in the December 2022 Quarterly Budget Review.

Moved: _____ **Seconded:** _____

CONSULTATION

All Managers with budget responsibility, as well as the MANEX group.

RESPONSIBLE ACCOUNTING OFFICER'S STATEMENT

The following statement is made in accordance with Clause 203(2) of the Local Government (General) Regulations 2005.

It is my opinion that the Quarterly Budget Review Statement for Muswellbrook Shire Council for the quarter ended 31 December 2022 indicates that Council's projected financial position will be satisfactory at year end, having regard to the projected estimates of income and expenditure (including identified savings) and the original budgeted income and expenditure.

Josh Hogan 13/02/2023

Responsible Accounting Officer, Muswellbrook Shire Council



REPORT

Financial Performance Overview

The Muswellbrook Shire Council consolidated result for the December 2022 Quarterly Budget Review shows a favourable variance of \$7k. This is the combined result of no net change in General Fund, unfavourable variances in the Water (\$66k) and Sewer (\$95k) Funds, and a favourable variance in Future Fund (\$168k).

Although General Fund shows no change to the bottom line in the December QBR, there are some significant unfavourable variances for which offsets have necessarily been identified or created.

Electricity price increases and other inflationary impacts continue to put a lot of pressure on the budget across the organisation. Council teams are cognisant of the budgetary pressures and are ensuring a prudent and conservative approach to financial management.

General Fund

General Fund break-even original budget result shows no net change in the December Quarterly Budget Review, but this is due to the introduction of significant expenditure cuts across the fund to offset projected increases in legal costs and reductions in waste management income and aquatic centre fee revenue. Investment income projections have improved though (up \$252k), slightly alleviating some of the pressure.

December QBR revenue projections of \$48.4M show a favourable variance of \$751k against the September QBR (\$47.6M). This is primarily the net effect of reduced Waste Management revenue (down \$900k, but 50% offset by reduced expenditure), and increased roads grant funding (Regional & Local Roads Repair Program (\$1.1M) and Fixing Local Roads – Pothole Repair Program (\$219k)).

Conversely, December QBR General Fund expense projections of \$48.4M show an unfavourable variance of \$751k against the September QBR of \$47.6M due to the net effect of increased road maintenance expenditure (up \$818k; grant funded) and projected legal costs (up \$725k from \$405k to \$1.1M), and reduced waste management costs (down \$472k), staff costs (down \$262k) and depreciation.

Council staff are investigating strategies to increase energy efficiency further and increase efficiencies in all processes across the organisation to help ensure financial sustainability.

Water Fund

Water Fund shows a deficit of \$276k in the December QBR, an unfavourable variance of \$95k against the September QBR. This is due to the net effect of increased water treatment costs (\$75k) and depreciation (\$95k), partially offset by increased investment yields.

Water consumption across the region is again this year trending low. The related revenue projections will be updated in the March QBR.

Sewer Fund

Sewer Fund also shows a deficit (\$354k) in the December QBR, an unfavourable variance of \$66k against the September QBR. This is primarily due to increased depreciation.

Treatment, operating and maintenance costs in the Water and Sewer Funds have been increasing significantly in recent times and the fees for the Water and Sewer services are being reviewed in preparation for the 2023/24 Budget to reflect this.

Future Fund

The budgeted Future Fund \$2.4M surplus shows a favourable variance in the December QBR of \$168k due to reduced depreciation expenses.

Budget Review for the Quarter Ended - 31 December 2022

Income & Expenses - Consolidated



	ORIGINAL Budget	Approved Changes		REVISED	Recommended changes for Council Resolution	PROJECTED year end result 2022/23	ACTUAL*
		Carryovers	Sept Review				
All figures are in \$000's	2022/23			Budget			YTD
Income							
<i>Rates and Annual Charges</i>	30,796	-	-	30,796	-	30,796	30,121
<i>User Charges and Fees</i>	20,513	-	1,619	22,132	(1,214)	20,918	9,559
<i>Interest and Investment Revenue</i>	510	-	120	630	357	987	601
<i>Other Revenues</i>	2,566	-	(103)	2,464	151	2,614	1,603
<i>Grants & Contributions - Operating</i>	7,023	270	44	7,337	1,575	8,912	2,755
<i>Internal Revenue**</i>	2,778	1,346	-	4,124	(113)	4,011	2,188
Total Income from continuing operations	64,187	1,616	1,680	67,483	756	68,239	46,827
Expenses							
<i>Employee costs</i>	16,792	-	(397)	16,395	(302)	16,093	8,887
<i>Materials & Contracts</i>	17,783	1,536	1,689	21,008	967	21,975	10,682
<i>Borrowing Costs</i>	2,227	-	-	2,227	-	2,227	1,005
<i>Depreciation</i>	15,200	-	-	15,200	(404)	14,796	8,593
<i>Overheads</i>	4,554	-	-	4,554	-	4,554	2,247
<i>Other Expenses</i>	5,315	80	857	6,252	488	6,740	3,823
Total Expenses from continuing operations	61,872	1,616	2,150	65,638	748	66,386	35,237
Net Operating Result from continuing operations	2,315	-	(469)	1,845	7	1,853	11,590

Budget Review for the Quarter Ended - 31 December 2022
Income & Expenses - Consolidated



	ORIGINAL	Approved Changes		REVISED	Recommended changes for Council	PROJECTED year end result
	Budget	Carryovers	Sept		Resolution	2022/23
	2022/23		Review			
All figures are in \$000's						
Reconciliation to Cash Budget						
Net Operating Result, excluding depreciation	17,515	-	(469)	17,046	(397)	16,649
Minus Budget Items not Included in Income Statement:						
Capital Expenditure and Purchases	17,662	33,284	(469)	50,477	91	50,568
Contribution from General Fund to Future Fund	2,000	-	-	2,000	(147)	1,853
Loan Principal Repayments	6,455	-	-	6,455	(297)	6,158
Sub-Total	26,118	33,284	(469)	58,932	(353)	58,579
Plus:						
Grants and Contributions - Capital	2,830	17,892	-	20,722	518	21,240
Cash Surplus/(Deficit)	(5,772)	(15,392)	(0)	(21,165)	475	(20,690)
Funded by:						
Borrowings	-	2,619	-	2,619	-	2,619
Transfers from Reserves	3,772	12,774	-	16,546	103	16,648
General Fund Contribution to Future Fund	2,000	-	-	2,000	(147)	1,853
Sub-Total	5,772	15,392	-	21,165	(45)	21,120
Cash Surplus (Deficit)	(0)	0	(0)	(0)	430	430
Transfers to Reserves	-	-	-	-	(430)	(430)

Provisional and contingent items identified but not yet Included in the figures above.

Legal cost liabilities

Capital project variations

Notes:

* Year to Date at 31 January 2023

** Internal Revenue includes internal recoveries and transfers from reserves

December Quarterly Budget Review 2022 - Operating Budget by Fund



All figures are in \$'000's	2022/23 Total Budget	2022/23 Carry Overs	2022/23 Budget + Carryovers	2022/23 Sep QBR Change	2022/23 Dec QBR Change	2022/23 Dec QBR Total
General Fund						
Revenue						
Rates and Charges	(23,573)	-	(23,573)	-	-	(23,573)
User Charges and Fees	(8,316)	-	(8,316)	(1,820)	1,114	(9,023)
Other Revenues	(2,566)	-	(2,566)	103	(151)	(2,614)
Operating Grants and Contributions	(6,949)	(270)	(7,219)	(44)	(1,575)	(8,838)
Internal Revenue	(2,654)	(1,095)	(3,749)	-	113	(3,636)
Interest and Investments Revenues	(340)	-	(340)	(120)	(252)	(712)
Borrowed Funds	-	-	-	-	-	-
Revenue Total	(44,399)	(1,365)	(45,764)	(1,881)	(751)	(48,396)
Expenses						
Wages and Salaries	14,360	-	14,360	(372)	(262)	13,726
Materials and Contracts	13,412	1,285	14,697	1,925	917	17,538
Overheads	2,313	-	2,313	-	-	2,313
Other Costs	3,559	80	3,639	329	493	4,461
Depreciation	10,267	-	10,267	-	(397)	9,870
Borrowing Costs	488	-	488	-	-	488
Expenses Total	44,399	1,365	45,764	1,881	751	48,396
General Fund Total	0	-	0	(0)	0	0

December Quarterly Budget Review 2022 - Operating Budget by Fund



All figures are in \$000's	2022/23 Total Budget	2022/23 Carry Overs	2022/23 Budget + Carryovers	2022/23 Sep QBR Change	2022/23 Dec QBR Change	2022/23 Dec QBR Total
Water Fund						
Revenue						
Rates and Charges	(1,892)	-	(1,892)	-		(1,892)
User Charges and Fees	(4,419)	-	(4,419)	(12)		(4,431)
Operating Grants and Contributions	(38)	-	(38)	-		(38)
Internal Revenue	-	(251)	(251)	-		(251)
Interest and Investments Revenues	(119)	-	(119)	-	(70)	(189)
Revenue Total	(6,467)	(251)	(6,719)	(12)	(70)	(6,801)
Expenses						
Wages and Salaries	1,324	-	1,324	(24)	-	1,300
Materials and Contracts	1,691	251	1,942	25	75	2,042
Overheads	1,037	-	1,037	-		1,037
Other Costs	366	-	366	192	(5)	553
Depreciation	1,963	-	1,963	-	95	2,058
Borrowing Costs	85	-	85	-		85
Expenses Total	6,467	251	6,719	193	165	7,076
Water Fund Total	0	-	0	181	95	276

December Quarterly Budget Review 2022 - Operating Budget by Fund



All figures are in \$000's	2022/23 Total Budget	2022/23 Carry Overs	2022/23 Budget + Carryovers	2022/23 Sep QBR Change	2022/23 Dec QBR Change	2022/23 Dec QBR Total
Sewer Fund						
Revenue						
Rates and Charges	(5,331)	-	(5,331)	-		(5,331)
User Charges and Fees	(577)	-	(577)	-	100	(477)
Operating Grants and Contributions	(37)	-	(37)	-		(37)
Interest and Investments Revenues	(51)	-	(51)	-	(35)	(86)
Revenue Total	(5,996)	-	(5,996)	-	65	(5,931)
Expenses						
Wages and Salaries	866	-	866	-	(40)	826
Materials and Contracts	1,082	-	1,082	(13)	(25)	1,044
Overheads	708	-	708	-		708
Other Costs	451	-	451	301	-	753
Depreciation	2,188	-	2,188	-	66	2,254
Borrowing Costs	701	-	701	-		701
Expenses Total	5,996	-	5,996	288	1	6,285
Sewer Fund Total	0	-	0	288	66	354

December Quarterly Budget Review 2022 - Operating Budget by Fund



All figures are in \$000's	2022/23 Total Budget	2022/23 Carry Overs	2022/23 Budget + Carryovers	2022/23 Sep QBR Change	2022/23 Dec QBR Change	2022/23 Dec QBR Total
Future Fund						
Revenue						
User Charges and Fees	(7,201)	-	(7,201)	213	-	(6,988)
Other Revenues	-	-	-	-	-	-
Internal Revenue	(124)	-	(124)	-	-	(124)
Revenue Total	(7,325)	-	(7,325)	213	-	(7,111)
Expenses						
Wages and Salaries	242	-	242	-	-	242
Materials and Contracts	1,599	-	1,599	(248)	-	1,351
Overheads	496	-	496	-	-	496
Other Costs	938	-	938	35	-	973
Depreciation	782	-	782	-	(168)	614
Borrowing Costs	953	-	953	-	-	953
Expenses Total	5,010	-	5,010	(213)	(168)	4,629
Future Fund Total	(2,315)	-	(2,315)	-	(168)	(2,483)
(Surplus)/Deficit	(2,315)	-	(2,315)	469	(7)	(1,853)

December 2022 Quarterly Budget Review - Details of Council Loans



Balance at 01/07/2022	Payment Type	2019/20 Repayments	2020/21 Repayments	2021/22 Repayments	2022/23 Repayments	2023/24 Repayments	2024/25 Repayments	2025/26 Repayments	2026/27 Repayments	2027/28 Repayments	2028/29 Repayments	2029/30 Repayments	2030/31 Repayments
Water Fund													
\$1,007,297	Principal	\$310,206	\$330,160	\$351,400	\$375,624	\$280,273	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Interest	\$87,745	\$67,791	\$46,551	\$23,815	\$4,977	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Total	\$397,951	\$397,951	\$397,951	\$399,439	\$285,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sewer Fund													
\$15,619,999	Principal	\$642,256	\$677,873	\$710,385	\$743,509	\$778,430	\$816,997	\$856,300	\$780,502	\$815,416	\$850,535	\$886,347	\$922,883
	Interest	\$761,835	\$726,218	\$693,706	\$660,582	\$625,661	\$587,094	\$549,281	\$509,827	\$474,913	\$439,794	\$403,982	\$367,446
	Total	\$1,404,091	\$1,404,091	\$1,404,091	\$1,404,091	\$1,404,091	\$1,404,091	\$1,405,581	\$1,290,329	\$1,290,329	\$1,290,329	\$1,290,329	\$1,290,329
General Fund													
\$7,033,329	Principal	\$592,931	\$614,941	\$715,625	\$747,212	\$589,049	\$398,903	\$411,895	\$425,955	\$440,494	\$455,537	\$471,112	\$400,583
	Interest	\$226,943	\$245,540	\$233,183	\$201,596	\$160,992	\$145,179	\$147,540	\$133,362	\$118,758	\$103,536	\$87,667	\$59,397
	Total	\$819,874	\$860,481	\$948,808	\$948,808	\$750,041	\$544,083	\$559,435	\$559,318	\$559,252	\$559,073	\$558,780	\$459,980
Future Fund													
\$45,600,163	Principal	\$4,822,070	\$5,116,650	\$5,447,178	\$4,270,338	\$3,546,155	\$3,608,444	\$3,699,073	\$3,788,145	\$2,781,513	\$2,095,246	\$1,306,313	\$1,010,380
	Interest	\$1,196,886	\$964,183	\$839,494	\$994,087	\$839,404	\$955,814	\$892,420	\$798,502	\$442,438	\$380,663	\$336,230	\$270,629
	Total	\$6,018,956	\$6,080,833	\$6,286,672	\$5,264,425	\$4,545,559	\$4,564,258	\$4,591,493	\$4,586,647	\$3,223,952	\$2,475,910	\$1,642,544	\$1,281,009
\$69,260,789		\$8,640,872	\$8,743,355	\$9,037,522	\$8,016,763	\$6,984,940	\$6,512,431	\$6,556,509	\$6,436,294	\$5,073,533	\$4,325,312	\$3,491,652	\$3,031,318

Purpose	Original Amount	Interest Rate	Balance at 1/7/2022	2022/23 Principal Repayments	2022/23 Interest Repayments	2022/23 Total Payments	Year of Final Payment	Notes (if any)
Water - South Muswellbrook Reservoir	\$1,100,000	6.03%	\$91,947	\$91,947	\$1,109	\$93,056	2022/23	
Water - Sandy Hollow Augmentation	\$300,000	6.09%	\$25,427	\$25,426	\$325	\$25,751	2022/23	
Water - South Muswellbrook Reservoir	\$3,200,000	6.61%	\$538,522	\$258,250	\$22,382	\$280,632	2023/24	
Sewer - Mains and Pump Stations	\$1,300,000	6.50%	\$406,758	\$91,957	\$21,805	\$113,762	2025/26	
General - Widden Bridge	\$1,750,000	6.00%	\$1,159,354	\$80,322	\$65,744	\$146,066	2034/35	
General - Smiths Bridge	\$1,573,967	4.28%	\$1,180,412	\$64,304	\$48,194	\$112,498	2024/25	
General - Roads Infrastructure Backlog	\$3,000,000	5.90%	\$573,423	\$371,478	\$33,832	\$405,310	2023/24	LIFS interest rate subsidy applies
General - Olympic Park Bridge	\$1,785,000	1.45%	\$1,641,582	\$109,398	\$23,093	\$132,491	2025/26	
Future Fund	\$3,300,000	1.60%	\$2,970,000	\$165,000	\$46,310	\$211,310	2024/25	
Future Fund - Seven Hills, Campbell's Corne	\$7,980,502	4.35%	\$7,980,502	\$672,758	\$339,944	\$1,012,702	2026/27	
Future Fund - Muswellbrook Marketplace	\$13,276,500	1.20%	\$12,200,896	\$625,546	\$143,216	\$768,762	2023/24	
Future Fund - Muswellbrook Marketplace	\$5,000,000	3.43%	\$739,277	\$739,277	\$12,582	\$751,859	2022/23	
Future Fund - Muswellbrook Marketplace	\$12,500,000	2.34%	\$9,285,643	\$1,338,923	\$209,160	\$1,548,083	2024/25	
Future Fund - Donald Home building	\$2,500,000	4.80%	\$2,500,000	\$208,834	\$117,534	\$326,368	2026/27	
Sewer - Sewer Treatment Plant	\$7,000,000	4.49%	\$6,074,062	\$263,628	\$267,344	\$530,972	2038/39	
Sewer - Sewer Treatment Plant	\$10,000,000	4.50%	\$8,428,794	\$387,925	\$371,432	\$759,357	2037/38	
Covid 19	\$2,000,000	1.77%	\$1,762,933	\$121,711	\$30,732	\$152,443	2022/23	
Throsby ACT	\$7,800,000	1.86%	\$6,976,667	\$520,000	\$125,341	\$645,341	2025/26	
TOTAL	\$85,365,969		\$64,536,199	\$6,136,684	\$1,880,079	\$8,016,763		

December 2022 Quarterly Budget Review - Reserves

		2022/2023 Original Budget		Carryovers	September 22 Review Changes		December 22 Review Changes		Projected Balance 30 June 2023
		Transfer to	Transfer From	Transfer From	Transfer to	Transfer From	Transfer to	Transfer From	
	\$'000's								
Externally Restricted									
General Fund									
Developer Contributions	1,299			(242)					1,057
Domestic Waste	881								881
Unexpended Grants (G)	4,098			(3,419)					679
Unexpended Loan	1,684			(1,684)					-
VPAs	3,725			(2,256)					1,469
General Fund Total	11,687			(7,601)					4,086
Water Fund									
Developer Contributions	7,671								7,671
Water	5,092			(1,100)					3,992
Water Fund Total	12,763			(1,100)					11,663
Sewer Fund									
Developer Contributions	3,520		(1,800)						1,720
Sewer	1,475			(182)	-				1,293
Sewer Fund Total	4,995		(1,800)	(182)	-				3,013
Externally Restricted Total	29,445		(1,800)	(8,883)	-				18,762

December 2022 Quarterly Budget Review - Reserves

Internally Restricted									
Future Fund									
Future Fund	1,118								1,118
Future Fund Total	1,118								1,118
General Fund									
Asset Replacement	2,497			(417)					2,080
Carryover Works	2,917			(2,717)					200
Deposits, Retentions and Bonds	4,450								4,450
Drainage	143								143
Economic Development	1,910		(1,196)						714
Employee Leave Entitlements	1,132								1,132
Financial Assistance Grant	3,115		(3,115)						-
Insurances	33								33
Mine Affected Roads	2,353								2,353
Natural Disaster - Flood	1,000								1,000
Other	286			(114)					172
Other Legal	1,050								1,050
Plant Replacement	2,404		(350)	(793)					1,261
Projects							430		430
Renewable Energy							113		113
Risk Management	78								78
SRV	1,578			(820)					758
Stormwater	1,030								1,030
Waste Management	6,525	1,251		(1,125)					6,651
General Fund Total	32,501	1,251	(4,661)	(5,986)			543		23,648
Internally Restricted Total	33,619	1,251	(4,661)	(5,986)			543		24,766
Unrestricted									
General Fund									
Unrestricted	24								24
General Fund Total	24								24
Unrestricted Total	24								24
Total	63,088	1,251	(6,461)	(14,869)	-		543		43,552

December 2022 Quarterly Budget Review

Contract, Consultancy and Legal Disclosures



Contractor	Contract detail & purpose	Contracts			
		Contract value	Commencement date	Duration of contract	Budgeted (Y/N)
RDO Equipment Pty Ltd	Supply and Delivery of Motor Grader	\$ 596,300.00	13/10/2022	Until Certificate is issued	Y
Hunter Events Group	Event Management Group	\$ 202,185.00	15/11/2022	5/03/2023	Y
Hi-Vis Group	Supply and Installation of LED Fire Danger Signs	\$ 153,410.00	29/11/2022	Until Certificate is issued	Y
Hunter Wide Civil	Oakleigh Bridge Replacement	\$ 432,190.00	19/12/2022	Until Certificate is issued	Y

Notes

1. Minimum reporting level is 1% of estimated income from continuing operations or \$50,000 whichever is the lesser.
2. Contracts to be listed are those entered into during the quarter and have yet to be fully performed, excluding contractors that are on Council's Preferred supplier list'.
3. Contracts for employment are not required to be included.
4. Where a contract for services etc was not included in the budget, an explanation is to be given (or reference made to an explanation in another Budget Review Statement).

PART B - Consultancy and Legal expenses

Consultancy and Legal expenses

Expense	Expenditure YTD	Budgeted (Y/N)
Consultancies	\$65,598	Y
Legal Fees	\$400,148	Y

Definition of consultant:

A consultant is a person or organisation engaged under contract on a temporary basis to provide recommendations or high level specialist or professional advice to assist decision-making by management. Generally it is the advisory nature of the work that differentiates a consultant from other contractors.

NOTE:

As at 31 December 2022, Council estimates there will be an additional \$725k in legal costs for this financial year. This has been included in the December QBR and will be reviewed as the year progresses.

This document forms part of Muswellbrook Shire Council's Quarterly Budget Review Statement for the quarter ended 31/12/22 and should be read in conjunction with other documents in the QBRs.

**9.4.7. Report on Investments Held as at 31 January 2023**

Attachments:	<ol style="list-style-type: none">1. Portfolio Valuation Report - 31 January 2023 [9.4.7.1 - 5 pages]2. Trading Limit Report - 31 January 2023 [9.4.7.2 - 8 pages]
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Responsible Officer: Derek Finnigan - Acting General Manager

Author: Mandy Fitzgerald (Senior Financial Accountant)

Community Plan Issue: 6 - *Community Leadership*

Community Plan Goal: 24.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.

Community Plan Strategy: 6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.

PURPOSE

To present the list of financial investments currently held by Council in accordance with the Regulation.

OFFICER'S RECOMMENDATION

Council notes the Council's Investments as at 31 January 2023.

Moved: _____ **Seconded:** _____

REPORT

Clause 212 (1) of the Local Government (General) Regulation 2005, requires details of funds invested, as at the end of the preceding month, to be reported to an ordinary meeting of Council.

Funds invested under Section 625 of the Local Government Act, as at 31 January 2023 are shown in the attachments.

COMMENT:

As at 31 January 2023, Council held \$65.511M in cash and investments with a weighted running yield of 3.74% for the month.

The Responsible Accounting Officer certifies that the investments listed have been made in accordance with the Act, the Regulations and Council's Investment Policy. This includes investments that have been made in accordance with Minister's Orders that have been subsequently amended. "Grandfathering" provisions still allow the holding of these investments. A detailed list of investments is attached.

	Fixed Interest Security	ISIN	Face Value Original	Bond Factor	Face Value Current	Capital Price	Accrued Interest Price	Market Value	% Total Value	Running Yield	Weighted Running Yield
At Call Deposit											
	Westpac Bus Prem At Call		2,261,584.40	1.00000000	2,261,584.40	100.000	0.000	2,261,584.40	3.43%	0.34%	
	Westpac Muswellbrook Trading Acct At Call		100,000.00	1.00000000	100,000.00	100.000	0.000	100,000.00	0.15%	0.34%	
			2,361,584.40		2,361,584.40			2,361,584.40	3.59%		0.34%
Fixed Rate Bond											
	BENAU 1.7 06 Sep 2024 Fixed	AU3CB0266377	2,500,000.00	1.00000000	2,500,000.00	95.823	0.690	2,412,825.00	3.66%	1.68%	
	NTTC 1.1 15 Dec 2025 - Issued 31 August 2021 - Muswellbrook Council Fixed		2,000,000.00	1.00000000	2,000,000.00	100.000	0.142	2,002,840.00	3.04%	1.10%	
	NTTC 1.1 15 Dec 2025 - Issued 6 September 2021 - Muswellbrook Council Fixed		1,500,000.00	1.00000000	1,500,000.00	100.000	0.142	1,502,130.00	2.28%	1.10%	
	SunBank 1.85 30 Jul 2024 Fixed	AU3CB0265403	2,000,000.00	1.00000000	2,000,000.00	96.265	0.005	1,925,400.00	2.92%	1.80%	
			8,000,000.00		8,000,000.00			7,843,195.00	11.91%		1.46%
Floating Rate Note											
	Auswide 1.05 17 Mar 2023 FRN	AU3FN0053567	2,000,000.00	1.00000000	2,000,000.00	100.044	0.501	2,010,900.00	3.05%	4.25%	
	Auswide 0.6 22 Mar 2024 FRN	AU3FN0059317	1,500,000.00	1.00000000	1,500,000.00	99.746	0.418	1,502,460.00	2.28%	3.81%	
	Auswide 1.5 07 Nov 2025 FRN	AU3FN0073037	1,000,000.00	1.00000000	1,000,000.00	100.294	1.062	1,013,560.00	1.54%	4.56%	
	BOQ 1.05 03 Feb 2023 FRN	AU3FN0040549	500,000.00	1.00000000	500,000.00	100.004	1.001	505,025.00	0.77%	4.11%	
	BOQ 1.03 18 Jul 2024 FRN	AU3FN0049094	1,000,000.00	1.00000000	1,000,000.00	100.251	0.155	1,004,060.00	1.52%	4.34%	
	BOQ 1.1 30 Oct 2024 FRN	AU3FN0051272	500,000.00	1.00000000	500,000.00	100.320	0.012	501,660.00	0.76%	4.48%	
	MACQ 0.48 09 Dec 2025 FRN	AU3FN0057709	3,000,000.00	1.00000000	3,000,000.00	98.713	0.524	2,977,110.00	4.52%	3.61%	
	RACB 0.93 24 Feb 2023 FRN	AU3FN0053146	1,000,000.00	1.00000000	1,000,000.00	100.012	0.750	1,007,620.00	1.53%	4.03%	
	MYS 0.65 16 Jun 2025 FRN	AU3FN0061024	3,000,000.00	1.00000000	3,000,000.00	98.790	0.484	2,978,220.00	4.52%	3.84%	
	NAB 0.93 26 Sep 2023 FRN	AU3FN0044996	2,000,000.00	1.00000000	2,000,000.00	100.343	0.389	2,014,640.00	3.06%	4.20%	
	NPBS 1.4 06 Feb 2023 FRN	AU3FN0040606	500,000.00	1.00000000	500,000.00	100.011	1.039	505,250.00	0.77%	4.40%	
	NPBS 1.12 04 Feb 2025 FRN	AU3FN0052627	5,500,000.00	1.00000000	5,500,000.00	99.883	1.008	5,549,005.00	8.42%	4.18%	
	Qld Police 0.75 22 Mar 2024 FRN	AU3FN0059416	1,500,000.00	1.00000000	1,500,000.00	99.774	0.434	1,503,120.00	2.28%	3.96%	
	Qld Police 1.75 06 Dec 2025 FRN	AU3FN0073979	2,000,000.00	1.00000000	2,000,000.00	100.143	0.739	2,017,640.00	3.06%	4.82%	
	UBS Aust 0.87 30 Jul 2025 FRN	AU3FN0055307	1,650,000.00	1.00000000	1,650,000.00	99.949	0.012	1,649,356.50	2.50%	4.19%	
			26,650,000.00		26,650,000.00			26,739,626.50	40.60%		4.12%
Term Deposit											
	AMP 4.2 15 Jun 2023 365DAY TD		4,000,000.00	1.00000000	4,000,000.00	100.000	2.647	4,105,863.00	6.23%	4.20%	
	AMP 4.45 21 Jul 2023 365DAY TD		1,250,000.00	1.00000000	1,250,000.00	100.000	2.365	1,279,565.06	1.94%	4.45%	
	AMP 4.55 30 Nov 2023 365DAY TD		1,000,000.00	1.00000000	1,000,000.00	100.000	0.773	1,007,728.77	1.53%	4.55%	
	AUBANK 4.2 01 Aug 2023 386DAY TD		5,000,000.00	1.00000000	5,000,000.00	100.000	2.347	5,117,369.85	7.77%	4.20%	
	BOQ 4 21 Jul 2023 365DAY TD		1,250,000.00	1.00000000	1,250,000.00	100.000	2.126	1,276,575.34	1.94%	4.00%	
	BVIC 4.6 11 Oct 2023 273DAY TD		2,000,000.00	1.00000000	2,000,000.00	100.000	0.252	2,005,041.10	3.04%	4.60%	
	BVIC 4.65 11 Jan 2024 365DAY TD		4,000,000.00	1.00000000	4,000,000.00	100.000	0.255	4,010,191.80	6.09%	4.65%	
	BBA 4.5 12 Jul 2023 182DAY TD		2,000,000.00	1.00000000	2,000,000.00	100.000	0.247	2,004,931.50	3.04%	4.50%	

Fixed Interest Security	ISIN	Face Value Original	Bond Factor	Face Value Current	Capital Price	Accrued Interest Price	Market Value	% Total Value	Running Yield	Weighted Running Yield
JUDO 4.25 10 Jan 2024 457DAY TD		4,000,000.00	1.00000000	4,000,000.00	100.000	1.316	4,052,630.12	6.15%	4.25%	
NAB 4.05 13 Sep 2023 365DAY TD		4,000,000.00	1.00000000	4,000,000.00	100.000	1.553	4,062,137.00	6.17%	4.05%	
		28,500,000.00		28,500,000.00			28,922,033.54	43.91%		4.31%
Fixed Interest Total		65,511,584.40		65,511,584.40			65,866,439.44	100.00%		3.74%

Section 2: FI Portfolio Valuation With Associated Latest Deal Information

Fixed Interest Security	ISIN	Latest FI Deal Settlement Date	WAL / Maturity Date Interim	Face Value Original	Bond Factor	Face Value Current	Capital Price	Accrued Interest Price	Market Value	% Total Value	Latest FI Deal Code	Notes of Latest FI Deal
At Call Deposit												
Westpac Bus Prem At Call		31 Jan 2023	31 Dec 2020	2,261,584.40	1.00000000	2,261,584.40	100.000	0.000	2,261,584.40	3.43%	LC161261	
Westpac Muswellbrook Trading Acct At Call		31 Oct 2018	31 Dec 2020	100,000.00	1.00000000	100,000.00	100.000	0.000	100,000.00	0.15%	LC64506	
				2,361,584.40		2,361,584.40			2,361,584.40	3.59%		
Fixed Rate Bond												
BENAU 1.7 06 Sep 2024 Fixed	AU3CB0266377	9 Jun 2020	6 Sep 2024	2,500,000.00	1.00000000	2,500,000.00	95.823	0.690	2,412,825.00	3.66%	LC88979	
NTTC 1.1 15 Dec 2025 - Issued 31 August 2021 - Muswellbrook Council Fixed		31 Aug 2021	15 Dec 2025	2,000,000.00	1.00000000	2,000,000.00	100.000	0.142	2,002,840.00	3.04%	LC111825	
NTTC 1.1 15 Dec 2025 - Issued 6 September 2021 - Muswellbrook Council Fixed		6 Sep 2021	15 Dec 2025	1,500,000.00	1.00000000	1,500,000.00	100.000	0.142	1,502,130.00	2.28%	LC112238	
SunBank 1.85 30 Jul 2024 Fixed	AU3CB0265403	29 Sep 2021	30 Jul 2024	2,000,000.00	1.00000000	2,000,000.00	96.265	0.005	1,925,400.00	2.92%	LC112956	
				8,000,000.00		8,000,000.00			7,843,195.00	11.91%		
Floating Rate Note												
Auswide 1.05 17 Mar 2023 FRN	AU3FN0053567	17 Mar 2020	17 Mar 2023	2,000,000.00	1.00000000	2,000,000.00	100.044	0.501	2,010,900.00	3.05%	LC84611	
Auswide 0.6 22 Mar 2024 FRN	AU3FN0059317	22 Mar 2021	22 Mar 2024	1,500,000.00	1.00000000	1,500,000.00	99.746	0.418	1,502,460.00	2.28%	LC103798	
Auswide 1.5 07 Nov 2025 FRN	AU3FN0073037	7 Nov 2022	7 Nov 2025	1,000,000.00	1.00000000	1,000,000.00	100.294	1.062	1,013,560.00	1.54%	LC156236	
BOQ 1.05 03 Feb 2023 FRN	AU3FN0040549	5 Feb 2018	3 Feb 2023	500,000.00	1.00000000	500,000.00	100.004	1.001	505,025.00	0.77%	LX55025	
BOQ 1.03 18 Jul 2024 FRN	AU3FN0049094	18 Jul 2019	18 Jul 2024	1,000,000.00	1.00000000	1,000,000.00	100.251	0.155	1,004,060.00	1.52%	LC74377	
BOQ 1.1 30 Oct 2024 FRN	AU3FN0051272	2 Jun 2020	30 Oct 2024	500,000.00	1.00000000	500,000.00	100.320	0.012	501,660.00	0.76%	LX88585	
MACQ 0.48 09 Dec 2025 FRN	AU3FN0057709	8 Mar 2021	9 Dec 2025	3,000,000.00	1.00000000	3,000,000.00	98.713	0.524	2,977,110.00	4.52%	LC103387	
RACB 0.93 24 Feb 2023 FRN	AU3FN0053146	24 Feb 2020	24 Feb 2023	1,000,000.00	1.00000000	1,000,000.00	100.012	0.750	1,007,620.00	1.53%	LX83602	
MYS 0.65 16 Jun 2025 FRN	AU3FN0061024	16 Jun 2021	16 Jun 2025	3,000,000.00	1.00000000	3,000,000.00	98.790	0.484	2,978,220.00	4.52%	LC107737	
NAB 0.93 26 Sep 2023 FRN	AU3FN0044996	18 Mar 2020	26 Sep 2023	2,000,000.00	1.00000000	2,000,000.00	100.343	0.389	2,014,640.00	3.06%	LX84919	
NPBS 1.4 06 Feb 2023 FRN	AU3FN0040606	21 Nov 2019	6 Feb 2023	500,000.00	1.00000000	500,000.00	100.011	1.039	505,250.00	0.77%	LC79854	
NPBS 1.12 04 Feb 2025 FRN	AU3FN0052627	12 Oct 2022	4 Feb 2025	5,500,000.00	1.00000000	5,500,000.00	99.883	1.008	5,549,005.00	8.42%	LC155163	
Qld Police 0.75 22 Mar 2024 FRN	AU3FN0059416	22 Mar 2021	22 Mar 2024	1,500,000.00	1.00000000	1,500,000.00	99.774	0.434	1,503,120.00	2.28%	LC103942	
Qld Police 1.75 06 Dec 2025 FRN	AU3FN0073979	6 Dec 2022	6 Dec 2025	2,000,000.00	1.00000000	2,000,000.00	100.143	0.739	2,017,640.00	3.06%	LC157907	
UBS Aust 0.87 30 Jul 2025 FRN	AU3FN0055307	10 Mar 2021	30 Jul 2025	1,650,000.00	1.00000000	1,650,000.00	99.949	0.012	1,649,356.50	2.50%	LC103504	
				26,650,000.00		26,650,000.00			26,739,626.50	40.60%		
Term Deposit												
AMP 4.2 15 Jun 2023 365DAY TD		15 Jun 2022	15 Jun 2023	4,000,000.00	1.00000000	4,000,000.00	100.000	2.647	4,105,863.00	6.23%	LC145780	
AMP 4.45 21 Jul 2023 365DAY TD		21 Jul 2022	21 Jul 2023	1,250,000.00	1.00000000	1,250,000.00	100.000	2.365	1,279,565.06	1.94%	LC147777	
AMP 4.55 30 Nov 2023 365DAY TD		30 Nov 2022	30 Nov 2023	1,000,000.00	1.00000000	1,000,000.00	100.000	0.773	1,007,728.77	1.53%	LC158134	
AUBANK 4.2 01 Aug 2023 386DAY TD		11 Jul 2022	1 Aug 2023	5,000,000.00	1.00000000	5,000,000.00	100.000	2.347	5,117,369.85	7.77%	LC147411	
BOQ 4 21 Jul 2023 365DAY TD		21 Jul 2022	21 Jul 2023	1,250,000.00	1.00000000	1,250,000.00	100.000	2.126	1,276,575.34	1.94%	LX147775	
BVIC 4.6 11 Oct 2023 273DAY TD		11 Jan 2023	11 Oct 2023	2,000,000.00	1.00000000	2,000,000.00	100.000	0.252	2,005,041.10	3.04%	LC159958	

Fixed Interest Security	ISIN	Latest FI Deal Settlement Date	WAL / Maturity Date Interim	Face Value Original	Bond Factor	Face Value Current	Capital Price	Accrued Interest Price	Market Value	% Latest Total FI Deal Value	Notes of Latest FI Deal
BVIC 4.65 11 Jan 2024 365DAY TD		11 Jan 2023	11 Jan 2024	4,000,000.00	1.00000000	4,000,000.00	100.000	0.255	4,010,191.80	6.09%	LC159887
BBA 4.5 12 Jul 2023 182DAY TD		11 Jan 2023	12 Jul 2023	2,000,000.00	1.00000000	2,000,000.00	100.000	0.247	2,004,931.50	3.04%	LC159977
JUDO 4.25 10 Jan 2024 457DAY TD		10 Oct 2022	10 Jan 2024	4,000,000.00	1.00000000	4,000,000.00	100.000	1.316	4,052,630.12	6.15%	LC155160
NAB 4.05 13 Sep 2023 365DAY TD		13 Sep 2022	13 Sep 2023	4,000,000.00	1.00000000	4,000,000.00	100.000	1.553	4,062,137.00	6.17%	LX153816
				28,500,000.00		28,500,000.00			28,922,033.54	43.91%	
Fixed Interest Total				65,511,584.40		65,511,584.40			65,866,439.44	100.00%	

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ACN 134 784 740
WWW.LAMINARCAPITAL.COM.AU

MELBOURNE OFFICE: LEVEL 5 RIALTO NORTH, 525 COLLINS STREET, MELBOURNE, VIC 3000 T 61 3 9001 6990 F 61 3 9001 6933
SYDNEY OFFICE: LEVEL 18 ANGEL PLACE, 123 PITT STREET, SYDNEY NSW, 2000 T 61 2 8094 1230
BRISBANE OFFICE: LEVEL 15 CENTRAL PLAZA 1, 345 QUEEN STREET, BRISBANE QLD, 4000 T 61 7 3123 5370

Report Code: TBSBP100EXT-01.17
Report Description: Portfolio Valuation As At Date
Parameters:
Term Deposit Interest Included
Cash Excluded
Settlement Date-Based Balances

1 Issuer Trading Limits

Issuer	Issuer Rating Group (Long Term)	Issuer Parent	Already Traded (with Issuer Group) Face Value	Limit For Book or Entity Notional	Trading Limit	Trading Limit Type	Trading Limit Value	Trading Limit Used (%)	Trading Limit Available (%)	Trading Limit Available (Value)	Trading Limit Exceeded (%)	Trading Limit Exceeded (\$)
AMP Bank Ltd	BBB+ to BBB-		6,250,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	95.00	5.00	301,158	0.00	0
ANZ Banking Group Ltd	AA+ to AA-		0.00	Book	30.00	% of 65,511,584.40	19,653,475.32	0.00	100.00	19,653,475	0.00	0
Australian Unity Bank	BBB+ to BBB-		5,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	76.00	24.00	1,551,158	0.00	0
Auswide Bank Limited	BBB+ to BBB-		4,500,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	69.00	31.00	2,051,158	0.00	0
Bank of Melbourne	AA+ to AA-	Westpac Banking Corporation Ltd	2,361,584.40	Book	30.00	% of 65,511,584.40	19,653,475.32	12.00	88.00	17,291,891	0.00	0
Bank of Queensland Ltd	A+ to A-		3,250,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	50.00	50.00	3,301,158	0.00	0
BankSA	AA+ to AA-	Westpac Banking Corporation Ltd	2,361,584.40	Book	30.00	% of 65,511,584.40	19,653,475.32	12.00	88.00	17,291,891	0.00	0
BankVic	BBB+ to BBB-		6,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	92.00	8.00	551,158	0.00	0
BankWest Ltd	AA+ to AA-	Commonwealth Bank of Australia Ltd	0.00	Book	30.00	% of 65,511,584.40	19,653,475.32	0.00	100.00	19,653,475	0.00	0
Bendigo & Adelaide Bank Ltd	A+ to A-		2,500,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	38.00	62.00	4,051,158	0.00	0
Beyond Bank Australia Ltd	BBB+ to BBB-		2,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	31.00	69.00	4,551,158	0.00	0
Commonwealth Bank of Australia Ltd	AA+ to AA-		0.00	Book	30.00	% of 65,511,584.40	19,653,475.32	0.00	100.00	19,653,475	0.00	0
Credit Suisse Sydney	BBB+ to BBB-		0.00	Book	20.00	% of 65,511,584.40	13,102,316.88	0.00	100.00	13,102,317	0.00	0
Credit Union Australia Ltd t/as Great Southern Bank	BBB+ to BBB-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
Greater Bank Ltd	BBB+ to BBB-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
Heritage Bank Ltd	BBB+ to BBB-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
ING Bank Australia Limited	A+ to A-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
Investec Bank Australia Limited	A+ to A-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
Judo Bank	BBB+ to BBB-		4,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	61.00	39.00	2,551,158	0.00	0
Macquarie Bank	A+ to A-		3,000,000.00	Book	20.00	% of 65,511,584.40	13,102,316.88	23.00	77.00	10,102,317	0.00	0
Members Banking Group Limited t/as RACQ Bank	BBB+ to BBB-		1,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	15.00	85.00	5,551,158	0.00	0
Members Equity Bank Ltd	A+ to A-	Bank of Queensland Ltd	3,250,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	50.00	50.00	3,301,158	0.00	0
MyState Bank Ltd	BBB+ to BBB-		3,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	46.00	54.00	3,551,158	0.00	0
National Australia Bank Ltd	AA+ to AA-		6,000,000.00	Book	30.00	% of 65,511,584.40	19,653,475.32	31.00	69.00	13,653,475	0.00	0
Newcastle Permanent Building Society Ltd	BBB+ to BBB-		6,000,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	92.00	8.00	551,158	0.00	0
Northern Territory Treasury Corporation	AA+ to AA-		3,500,000.00	Book	30.00	% of 65,511,584.40	19,653,475.32	18.00	82.00	16,153,475	0.00	0
NSW Treasury Corporation	AA+ to AA-		0.00	Book	100.00	% of 65,511,584.40	65,511,584.40	0.00	100.00	65,511,584	0.00	0
P&N Bank Ltd	BBB+ to BBB-		0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
QPCU LTD t/a QBANK	BBB+ to BBB-		3,500,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	53.00	47.00	3,051,158	0.00	0
Rabobank Australia Ltd	A+ to A-		0.00	Book	20.00	% of 65,511,584.40	13,102,316.88	0.00	100.00	13,102,317	0.00	0

1 Issuer Trading Limits

Issuer	Issuer Rating Group (Long Term)	Issuer Parent	Already Traded (with Issuer Group) Face Value Notional	Limit For Book or Entity	Trading Limit	Trading Limit Type	Trading Limit Value	Trading Limit Used (%)	Trading Limit Available (%)	Trading Limit Available (Value)	Trading Limit Exceeded (%)	Trading Limit Exceeded (\$)
Rabobank Nederland Australia Branch	A+ to A-		0.00	Book	20.00	% of 65,511,584.40	13,102,316.88	0.00	100.00	13,102,317	0.00	0
Royal Bank of Scotland	A+ to A-		0.00	Book	5.00	% of 65,511,584.40	3,275,579.22	0.00	100.00	3,275,579	0.00	0
Rural Bank Ltd	A+ to A-	Bendigo & Adelaide Bank Ltd	2,500,000.00	Book	10.00	% of 65,511,584.40	6,551,158.44	38.00	62.00	4,051,158	0.00	0
St George Bank Limited	AA+ to AA-	Westpac Banking Corporation Ltd	2,361,584.40	Book	30.00	% of 65,511,584.40	19,653,475.32	12.00	88.00	17,291,891	0.00	0
Suncorp-Metway Ltd	A+ to A-		2,000,000.00	Book	20.00	% of 65,511,584.40	13,102,316.88	15.00	85.00	11,102,317	0.00	0
UBS Australia Ltd	AA+ to AA-		1,650,000.00	Book	20.00	% of 65,511,584.40	13,102,316.88	13.00	87.00	11,452,317	0.00	0
Westpac Banking Corporation Ltd	AA+ to AA-		2,361,584.40	Book	30.00	% of 65,511,584.40	19,653,475.32	12.00	88.00	17,291,891	0.00	0
			78,346,337.60				455,305,511.58			376,959,164		0
		(Excluding Parent Group Duplicates)	65,511,584.40									

2 Security Rating Group Trading Limits

Security Rating Group	Already Traded Face Value Notional	Limit For Book or Trading Entity	Trading Limit	Trading Limit Type	Trading Limit Value	Trading Limit Used (%)	Trading Limit Available (%)	Trading Limit Available (Value)	Trading Limit Exceeded (%)	Trading Limit Exceeded (\$)
AAA	0.00	Book	100.00	% of 65,511,584.40	65,511,584.40	0.00	100.00	65,511,584	0.00	0
AA+ to AA-	3,500,000.00	Book	100.00	% of 65,511,584.40	65,511,584.40	5.00	95.00	62,011,584	0.00	0
A+ to A-	10,650,000.00	Book	70.00	% of 65,511,584.40	45,858,109.08	23.00	77.00	35,208,109	0.00	0
A1+	8,361,584.40	Book	100.00	% of 65,511,584.40	65,511,584.40	13.00	87.00	57,150,000	0.00	0
A1	0.00	Book	100.00	% of 65,511,584.40	65,511,584.40	0.00	100.00	65,511,584	0.00	0
A2	24,500,000.00	Book	70.00	% of 65,511,584.40	45,858,109.08	53.00	47.00	21,358,109	0.00	0
A3	4,000,000.00	Book	60.00	% of 65,511,584.40	39,306,950.64	10.00	90.00	35,306,951	0.00	0
BBB+ to BBB-	14,500,000.00	Book	60.00	% of 65,511,584.40	39,306,950.64	37.00	63.00	24,806,951	0.00	0
	65,511,584.40				432,376,457.04			366,864,872		0

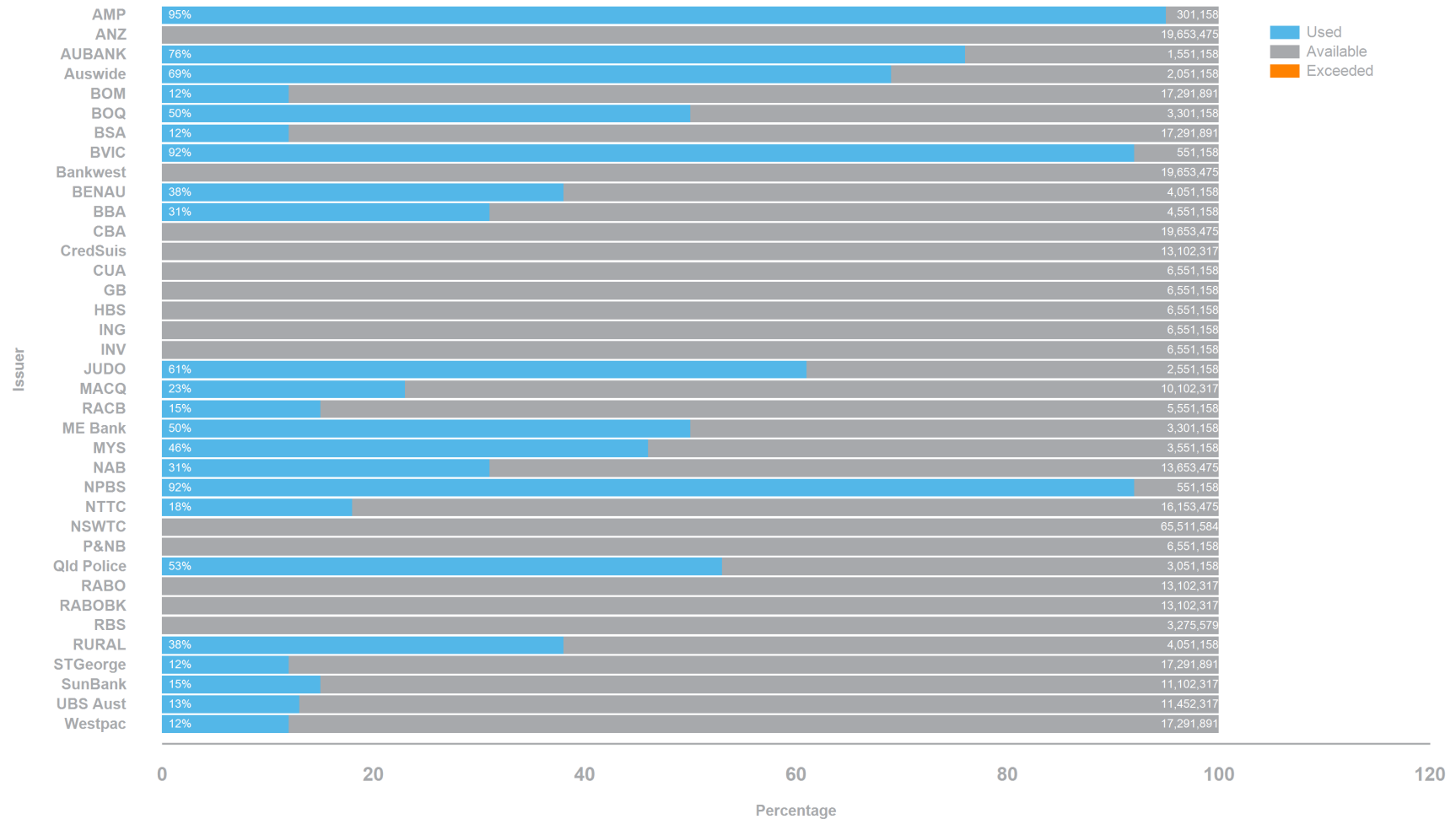
Notes

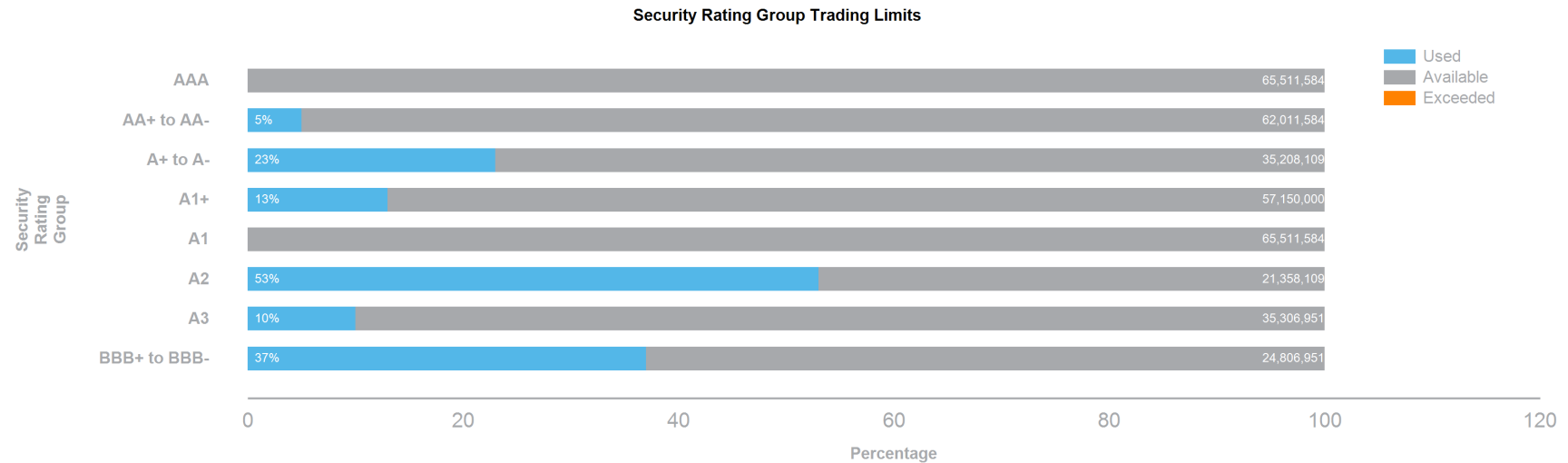
1. In instances where long securities have a term remaining which is less than 365 days, the issuer's short term rating is used instead of the security's (presumably long term) rating.

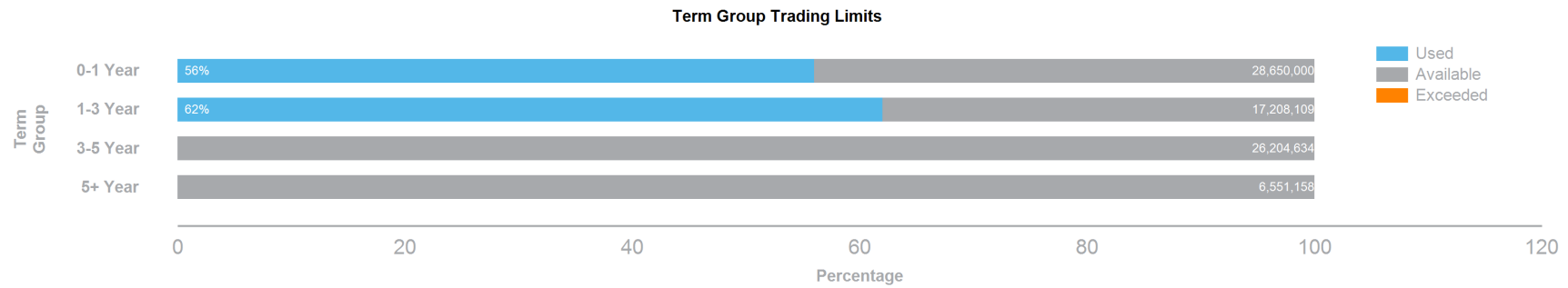
3 Term Group Trading Limits

Term Group	Already Traded Face Value Notional	Limit For Book or Trading Entity	Trading Limit	Trading Limit Type	Trading Limit Value	Trading Limit Used (%)	Trading Limit Available (%)	Trading Limit Available (Value)	Trading Limit Exceeded (%)	Trading Limit Exceeded (\$)
0-1 Year	36,861,584.40	Book	100.00	% of 65,511,584.40	65,511,584.40	56.00	44.00	28,650,000	0.00	0
1-3 Year	28,650,000.00	Book	70.00	% of 65,511,584.40	45,858,109.08	62.00	38.00	17,208,109	0.00	0
3-5 Year	0.00	Book	40.00	% of 65,511,584.40	26,204,633.76	0.00	100.00	26,204,634	0.00	0
5+ Year	0.00	Book	10.00	% of 65,511,584.40	6,551,158.44	0.00	100.00	6,551,158	0.00	0
	65,511,584.40				144,125,485.68			78,613,901		0

Issuer Trading Limits







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Report Code: TBSBP125EXT-00.16
Report Description: Trading Limit Performance As At Date
Parameters:
As At/Scenario Date: 31 January 2023
Balance Date: 7 February 2023 (but 31 Jan 2023 used instead)
Trading Entity: Muswellbrook Shire Council
Trading Book: Muswellbrook Shire Council
Report Mode: BalOnly
Using Face Value
Trading Entity and Book Limits
Effects of Parent/Child Issuers Not Ignored



9.4.8. Report on Council Grant Funding and Community Engagement

Attachments:	Nil
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Ivan Skaines (Grants and Community Engagement Officer)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.

PURPOSE

To advise Council of recent grant applications submitted, grant funding recently announced or to be announced shortly, and of upcoming grant opportunities. In addition, to provide updates on Council's other grants and community engagement activities.

OFFICER'S RECOMMENDATION

The information contained in the report be noted.

Moved: _____ **Seconded:** _____

BACKGROUND

Muswellbrook Shire Council has been successful in obtaining grants which have been decided via competitive applications and, in addition, Council has continued to receive grant allocations from both State and Federal government sources for which Council is required to nominate appropriate projects for funding.

CONSULTATION

Grant applications are aligned to projects identified by the Muswellbrook Shire 2022-2026 Delivery Program and prepared in consultation with the Mayor, Council's senior managers and key staff in relevant sections. Councillors are regularly consulted regarding grant applications via the Grants Advisory Committee.

REPORT

Grant applications recently submitted

- **Round Two of the NSW Social Cohesion Grants** focuses on new and innovative activities that promote and enhance volunteerism. This program is administered by the Department of Premier and Cabinet and Council submitted an application for funding of **\$82,500 to promote Muswellbrook Shire as a place to work, live, invest and visit and to encourage volunteers at our Visitor Information Centre(s)**. Grant recipients will be notified mid-February 2023.
- **Local Government Authority Arts & Cultural Projects Funding** supports Local



Government arts and cultural projects that are essential to a contemporary, innovative and strong arts and cultural environment in NSW. Our application was for **\$200,000 program funding and titled Collections Conservation, Preservation, Cataloguing and Research” at the Muswellbrook Regional Arts Centre.**

- Council submitted an application for **\$166,000 under the Smart Places Acceleration Program for Hunter Beach Recreation Area River Monitoring** involving a new river gauge connected by Cloud technology to allow smartboard(s) to display risk warnings from rising waters for swimming or walking in this area. It will also provide enhanced capability for water quality monitoring for the town’s drinking water supply immediately downstream of this site.
- Applications for funding for **Disaster Ready Fund (DRF) Round One: 2023-24** closed on 14 February 2023 and Council’s application is **\$1,177,000** for the **construction of new piped stormwater drainage in Palace Street, Denman** to build long term sustainability and resilience within the urban area of the town against future natural disaster events.

Upcoming Grant and Funding Opportunities

- The NSW Government has opened the Waste and Sustainable Materials Strategy 2041 (WASM) **Litter Prevention Grants Program** for councils, community groups and other key stakeholders to deliver litter prevention projects and develop strategic plans to address litter in their local environments. Up to \$10 million in funding is available in 3 streams from 2022 to 2027, and Council is intending to apply for funding under Stream 2: Strategic development and capacity building. **Expressions of interest for Intake 1 close 1 March 2023.**
- **Create NSW Multi-Year Funding** supports independent arts and cultural organisations and Local Government Authorities to deliver, develop and present multiple arts and cultural activities over a 4-year period. **Expressions of interest close 1 March 2023.** There is no upper limit to the amount of funding Council might request however applicants must not request funding for the total cost of the program, and Council needs an independent financial contribution (cash and/or in kind) from other sources. Multi-year funding is an important function in supporting the longevity and sustainability of the leading independent arts and cultural organisations and LGAs in NSW and funding is available for:
 - the creation of new work, practice-based research, or professional development
 - production, exhibition, presenting, publishing, or recording, touring and festivals
 - promotion and marketing, market and/or audience development activity
 - conservation and/or development of collections and archives (including Aboriginal Keeping Places and the digitisation of collections)
 - partnerships, capacity building and sustainability.
- The **Volunteering Diversity and Inclusion Grants Program** is a pilot initiative implemented by the NSW Department of Communities and Justice (DCJ). The Program provides time-limited grants of between \$10,000 to \$25,000 for new projects which grow participation in volunteering by diverse community groups in NSW and the NSW Government has committed \$500,000 to this pilot initiative under the NSW Volunteering Strategy 2020-2030. **Applications close 6 March 2023.**
- The 2023 round of the **NSW Environmental Trust’s Protecting Our Places** program is now open to Aboriginal organisations around NSW. A total of \$500,000 in funding is available in this round for projects that encourage and empower Aboriginal communities to protect, conserve and restore cultural landscapes that are important to local Aboriginal communities. Grants of up to \$80,000 are available over two stages and successful applicants receive project management, capacity-building, training and mentoring



support from the Trust. **Applications close 24 March 2023.**

- Under the \$70 million **Community Assets Program**, Council can apply for funding to repair parks, playgrounds, walkways, places of cultural heritage, and other community assets including libraries, pedestrian bridges and community-based pre-schools damaged by the floods in February and June 2022. The program is jointly funded by the Federal and New South Wales Governments under the Disaster Recovery Funding Arrangements (DRFA). Council is in Pool C and has a notional funding allocation of \$1 million based on the assessed impact on community infrastructure in our LGA. **Applications close 27 March 2023.**
- The **Local Government Waste Solutions Fund Round 1** will encourage a transition to a circular economy through supporting innovative waste and recycling solutions designed in collaboration with partners to achieve impactful projects with long-term outcomes. Eligible projects must contribute to achieving at least one of the priorities and targets identified in the NSW Government's Waste and Sustainable Materials (WaSM) Strategy 2041 and the NSW Plastics Action Plan. Local Government Waste Solutions projects can be delivered by an individual or collaboration of local councils and all projects must be completed by June 2027. A project delivered by an individual council has a maximum funding limit of \$200,000. **Applications close 31 March 2023.**
- The \$175 million **Growing Regional Economies Fund** is part of the NSW Government's \$3.3 billion Regional Growth Fund and is designed to deliver economic growth and productivity across regional NSW. The Fund will support projects that have a strong alignment with the Regional Economic Development Strategies (REDS) and increase infrastructure investment and economic activity within regional NSW's Functional Economic Regions (FERs). It will facilitate the delivery of the NSW Government's 20-year Economic Vision for Regional NSW by co-funding transformational projects that enable economic growth and prosperity in regional communities (including enabling infrastructure that will support investment in regional housing projects to meet demand generated by growth in employment and economic activity).
- Expressions of interest are now open for site hosts under the **Drive Electric NSW EV Fast Charging Site Host Program**. The program is especially interested in receiving expressions of interest for sites identified as optimal zones on the NSW EV fast charging master plan map but are also accepting expressions of interest for sites which are not in one of the identified optimal zones. **Expressions of interest for site hosts will close 30 June 2023.**
- The Australian Government is continuing to support local councils to deliver services and build infrastructure that provides benefits and supports jobs in local communities across the nation through the **Local Roads and Community Infrastructure Program**. The Government has committed \$750 million to Phase 4 of the LRCI Program, including \$250 million focusing on road projects in rural, regional and outer urban areas. **Councils will be able to access their Phase 4 funding allocations from July 2023, with projects to be delivered by June 2025 and Council's Phase 4 nominal funding allocation is \$577,898.**
- Council has received an invitation to apply for funding from the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and the Arts for the "**Olympic Park Master Plan - Stage 2 Grandstand**" project, which has been **identified for funding of \$5.5 million through the Priority Community Infrastructure Program** as it was a commitment made by the Australian Government during the 2022 election campaign. **Council also has a commitment of \$10.5 million in funding for "the completion of the Muswellbrook Town Square to host community events and drive continued redevelopment of the local area"**. Council is required to **return applications and supporting documents** as soon as possible, but



no later than 6 months after receiving the invitation (i.e. **by early August 2023**).

Grant funding recently announced

- Council has received funding of **\$1,017,766 under Round 5 of the Stronger Country Communities Fund**. The projects are:
 - Victoria Park Facilities - \$100,000
 - Public buildings accessibility program - \$100,000
 - Playground construction Civic Pocket Possum Park - \$250,000
 - Animal Care Facility Watercourse and Riparian Corridor - \$300,000
 - Paths and other accessible infrastructure around proposed new bus shelters and bus shelter upgrades - \$267,766
- Under the NSW Government's **Regional and Local Road Repair Program**, Council has received funding of **\$1,132,247 for urgent repairs to the Shire's road network** significantly impacted by severe flooding, storm damage and persistent wet weather events during 2022, based on the length of the Shire's regional and local road network.
- Under the **Female Friendly Community Sport Facilities and Lighting Upgrades Program 2022/23**, Council has received **\$492,760 for lighting upgrades at Weeraman Fields, Muswellbrook** (Council's priority #1) and **\$447,040 for lighting upgrades at Highbrook Park, Muswellbrook** (Council's priority #2).

Unsuccessful applications

- Council's application under **Places to Play for a shared path to Hunter Beach** has been unsuccessful. This program was offering \$16.7 million to provide more public open spaces for adventure and play, and will focus on the creation of inclusive water, nature and adventure play for people of all ages and abilities in NSW.

Muswellbrook Shire Council Grants Portal

The report for data from June 2022 to December 2022 for Council's grant finding portal at <https://muswellbrook.grantguru.com.au/> is listed in the table below:

Indicator	Jan	Dec	Nov	Oct	Sep	Aug	Jul
Total unique portal visitors ^[1]	27	44	40	97	43	59	38
Number of page views ^[2]	108	128	165	250	134	242	242
Total cumulative registrations to the portal (via the sign-up form) ^[3]	84	83	82	81	79	76	71
Grant alerts sent per month to registered users	564	485	784	680	630	653	542

^[1] A visitor is someone who has viewed your portal, but may or may not be registered - the same person is not double counted.

^[2] Page views are the total number of a visitor's 'clicks' within your portal, and includes viewing grant information. Repeated views of a single page are counted.

^[3] Registrations are people that have registered to your portal via the signup form and are still active.

Community interaction with the grant finding portal is generally positive. The number of registered users is continuing to increase.



CONCLUSION

Council notes recent grant applications submitted, grant funding recently announced or to be announced shortly, upcoming grant opportunities and other grants and community engagement activities.

SOCIAL IMPLICATIONS

Applications for funding submitted by Council address priority issues in the community.

FINANCIAL IMPLICATIONS

The funding received under these grant programs will offset expenditure that would otherwise need to be committed by Council.

POLICY IMPLICATIONS

Council will need to maintain any assets for which funding is obtained according to Policy A40-1 - Asset Management Policy.

STATUTORY IMPLICATIONS

Council's grant applications align with the goals identified in the Muswellbrook Shire 2022-2032 Community Strategic Plan and with a range of Federal, State and regional strategies and plans.

LEGAL IMPLICATIONS

Where grant applications are successful, Council will be required to enter into a grant agreement with the funding body.

OPERATIONAL PLAN IMPLICATIONS

The projects funded by these grants are in line with the Muswellbrook Shire 2022-2032 Community Strategic Plan and the Muswellbrook Shire 2022-2026 Delivery Program.

RISK MANAGEMENT IMPLICATIONS

Council is required to identify risks and associated risk management strategies for each project in preparing the grant application.

WASTE MANAGEMENT IMPLICATIONS

Nil.

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

All grant funding announcements contained in this report are no longer under embargo.



9.4.9. Annual Conference Attendance by Councillors

Attachments:	Nil
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Michelle Sandell-Hay (Governance Officer)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves. 6.2.1.1 - Provide transparent reporting to the community about Council's finances.

PURPOSE

To consider annual conference attendance by Councillors in accordance with the Councillor Expenses & Facilities Policy.

OFFICER'S RECOMMENDATION

1. Council appoints Councillor delegates to attend each of the following conferences being held in 2023:
 - a. Local Government NSW (LGNSW) Annual Conference – the Mayor, Cr and Cr, who will also be Council's two nominated voting delegates.
 - b. Australian Local Government Association (ALGA) National General Assembly of Local Government – the Mayor and Cr, with the Mayor also being Council's voting delegate.
 - c. Australian Local Government Women's Association (ALGWA) NSW Conference: Cr
 - d. Local Government NSW (LGNSW) Destination and Visitor Economy Conference – Cr
 - e. Local Government NSW (LGNSW) Water Management Conference – Cr
 - f. Local Government Aboriginal Network Conference – Cr
 - g. Australian Local Government Association (ALGA) National Local Roads and Transport Conference – Cr
 - h. Waste Conference – Cr
2. Council reimburses expenses in accordance with MSC02E Councillor Expenses & Facilities Policy.
3. Arrangements be made for registration, accommodation and travel to the Conferences.



4. Councillor delegates provide a written report for the information of Council within three months of conference attendance.

Moved: _____ **Seconded:** _____

BACKGROUND

At the Council Meeting held on 23 August 2022, Council reviewed and adopted its current Councillor Expenses & Facilities Policy. Clauses 6.14 to 6.19 relate to professional development and conferences and seminars.

Determining Councillor attendance early in each calendar year will enable each Councillor to plan their professional development in advance, and provides the opportunity to indicate their interest in participating in conferences that are of interest to them and which they believe will best support their individual professional development needs.

This practice would also ensure that the annual Councillor Conferences and Seminars Budget is distributed equitably.

CONSULTATION

Acting General Manager

REPORT

Local Government NSW provide a number of conferences annually. Details of relevant conferences scheduled to be held throughout 2023, including the dates, locations (where known) are outlined in the table below:

Conference	Date	Location	Number of Delegates
LGNSW Annual Conference	12 to 14 Nov 2023	Rosehill Gardens Racecourse	Two required
ALGA National General Assembly	13 to 16 Jun 2023	National Convention Centre, Canberra	Two required
ALGWA NSW Conference	27 to 29 Apr 2023	Forbes Town Hall	One required
LGNSW Destination & Visitor Economy	29 to 31 May 2023	Manly Pacific Hotel	One required
LGNSW Water Management	26 to 28 Jun 2023	Parkes Leagues Club	One required
Local Government Aboriginal Network	TBC	TBC	One required
ALGA National Local Roads & Transport Congress	TBC	TBC	
Waste 2023	9 to 11 May 2023	Opal Cove Resort, Coffs Harbour	

OPTIONS



The following options are available to Council:

1. Appoint Councillor delegates to attend the various conferences held throughout 2023 and reimburse expenses in accordance with the Councillor Expenses & Facilities Policy.
2. Appoint a different number of Councillor delegates to attend the 2023 conferences.
3. Resolve that no Councillors attend 2023 conferences.

Option one is recommended.

CONCLUSION

It is recommended that Council consider delegates for the various conferences to be held throughout 2023 to meet the requirements of the Councillor Expenses & Facilities Policy and to provide Councillors with valuable networking and professional development opportunities.

SOCIAL IMPLICATIONS

Not applicable.

FINANCIAL IMPLICATIONS

The MSC02E Councillor Expenses & Facilities Policy establishes a budget of \$14,000 per annum for Councillor professional development activities, which includes conference attendance. This is reflected in Council's annual Operational Plan and Budget.

Consistent with the Policy, Council will reimburse or pay registration fees and expenses related to conference attendance.

The budget currently has \$8,078.16 available.

Conference	Date	Location	Cost
LGNSW Annual Conference	12 to 14 November 2023	Rosehill Gardens Racecourse	TBA
ALGA National General Assembly	13 to 16 June 2023	National Convention Centre, Canberra	\$895 per attendee + Accommodation/Travel Or \$689 virtual attendance
ALGWA NSW Conference	27 to 29 April 2023	Forbes Town Hall	\$1,403.00 per attendee + Accommodation/Travel
LGNSW Destination & Visitor Economy	29 to 31 May 2023	Manly Pacific Hotel	\$1050 per attendee (member) or \$2285 + Accommodation/Travel
LGNSW Water Management	26 to 28 June 2023	Parkes Leagues Club	TBA
Local Government Aboriginal Network	TBC	TBC	TBA



Conference	Date	Location	Cost
ALGA National Local Roads & Transport Congress	TBC	TBC	TBA
Waste 2023	9 to 11 May 2023	Opal Cove Resort, Coffs Harbour	\$1,375-\$1510 Per attendee + Accommodation/Travel

POLICY IMPLICATIONS

This report aligns with the MSC02E Councillor Expenses & Facilities Policy

STATUTORY IMPLICATIONS

Local Government (General) Regulation, Part 8A Induction training and professional development for councillors

LEGAL IMPLICATIONS

Not applicable.

OPERATIONAL PLAN IMPLICATIONS

6.2.5.5 Provide governance support services for the elected Council and executive

RISK MANAGEMENT IMPLICATIONS

Not applicable.

WASTE MANAGEMENT IMPLICATIONS

Not applicable.

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Not applicable.

**9.4.10. Country Mayors Association of NSW Membership**

Attachments:	Nil
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Michelle Sandell-Hay (Governance Officer)
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.
	Not applicable

PURPOSE

To consider membership of the Country Mayor's Association of NSW.

OFFICER'S RECOMMENDATION

Council endorses membership to the Country Mayor's Association of NSW and the relevant membership fees be paid.

Moved: _____ **Seconded:** _____

BACKGROUND

The Country Mayor's Association (CMA) was established to further the interests of regional, rural and remote country areas in NSW by being an effective voice and forum for country NSW Mayors. Those eligible for membership are the Mayors and General Managers of those country Councils.

Currently, there are 76 Council members of the Association. The Association acts as a lobby group pursuing the interests of its members, and makes submissions to LGNSW, Ministers, Government Departments and agencies on its members' behalf. The Association does not work against the interests of LGNSW, but works closely with that Association.

CONSULTATION

Mayor
Acting General Manager

REPORT

The newly elected Chair of the CMA has written to Council inviting Council to join the organisation.

Meetings of the Association are held quarterly (March, June, August and November) in Sydney. High profile speakers address each meeting of the Association and, where possible, invite Ministers or senior bureaucrats so that members can receive information of importance to regional NSW firsthand, and to provide an opportunity for members to ask questions specific to their Council.



The CMA surveys members annually for their top ten ranked issues affecting councils and communities. This information is collated and reported back to members and forms the basis of their advocacy.

Membership fees are decided at the Annual General Meeting which is held in November each year and are used to pay a secretariat, any room hire fees and the cost of morning tea. Accumulated fees are available to be used to further the interests of members such as lobbying and undertaking research to allow submissions to be prepared to Government on issues affecting member councils.

OPTIONS

To become a member of the Country Mayor's Association of NSW.

Or

Decline the offer of membership.

CONCLUSION

It is recommended that Council endorses membership to the Country Mayor's Association of NSW and the relevant membership fees be paid.

SOCIAL IMPLICATIONS

Nil

FINANCIAL IMPLICATIONS

Annual membership of \$750 per annum for councils with a population of 10,000 or more, and 75% of that figure - \$562.50 - for councils with a population of 10,000 or less.

POLICY IMPLICATIONS

Not applicable

STATUTORY IMPLICATIONS

Not applicable

LEGAL IMPLICATIONS

Not applicable

OPERATIONAL PLAN IMPLICATIONS

Not applicable

RISK MANAGEMENT IMPLICATIONS

Not applicable

WASTE MANAGEMENT IMPLICATIONS

Not applicable

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Not applicable



9.5. Community and Economy

9.5.1. Theme of 2023 Blue Heeler Film Festival

Attachments:	Nil
Responsible Officer:	Shaelee Welchman - Director - Community & Economy
Author:	Kim Manwarring (Manager Community Services), Stephen Wright (Records Officer)
Community Plan Issue:	2 - <i>Social Equity and Inclusion</i>
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	4.3.1 - Develop and implement a program of Shire events to engage more locals and attract more visitors 4.3.1.1 - Council works in partnership with community groups to deliver a minimum of six events a year.

PURPOSE

To provide information to Council about the Blue Heeler Film Festival 2023 proposed theme to celebrate the festival's 10-year anniversary.

OFFICER'S RECOMMENDATION

Council endorses 'Blue' as the Blue Heeler Film Festival 2023 theme.

Moved: _____ **Seconded:** _____

BACKGROUND

The Blue Heeler Film Festival has been a Council Community Event since 2013. Collaboration between Muswellbrook Shire Council (MSC) and the University of Newcastle College of Human and Social Futures School of Humanities, Creative Industries and Social Science (UON) was established in 2019 to provide students with a valuable real industry project to build skills, encourage collaborative, creative work practices and provide scope for potential future projects and career insights.

CONSULTATION

Acting General Manager, Director of Community & Economy, University of Newcastle, College of Human and Social Futures School of Humanities, Creative Industries and Social Science, MANEX

REPORT

The Blue Heeler Film Festival 2022 Report provided by the College of Human and Social Futures School of Humanities, Creative Industries and Social Science made a series of recommendations for 2023. One of these is to announce the festival and theme earlier to allow filmmakers more time to produce entries.

The Community Services Officer – Partnerships worked closely with the UoN Student Team in the development and delivery of the Blue Heeler Film Festival. During this work the



Student Team proposed that an appropriate 2023 theme would be **'Blue'**. This theme is not restrictive and can be incorporated into a film which will attract a broad range of entries that will celebrate the Film Festival's namesake.

CONCLUSION

The Blue Heeler Film Festival 2023 will mark the 10-year anniversary, and determining the 2023 theme 'Blue' as recommended by the UoN Student team will provide ample time to promote the theme across the Film Festival social media platforms. This timing will generate and attract a variety of film makers to celebrate the 10-year anniversary and build on the momentum that the festival created last year.

SOCIAL IMPLICATIONS

The Blue Heeler Film Festival provides opportunities for local community members with an interest in film making to come together and participate in workshops that are delivered locally.

This community event brings people together to enjoy a cultural activity and develop positive and supportive communities.

FINANCIAL IMPLICATIONS

Ongoing Operational and Maintenance Costs Implications Associated with Capital Project

1. Financial Implications – Capital

Bengalla Mining provide \$15 000 sponsorship to the Blue Heeler Film Festival; this covers prize monies.

2. Financial Implications – Operational

Funding is dependent on a budget allocation in the 2023-24 Budget, Tourism & Events Screen Audience & Development 0310.088.500, a portion of this budget is used to cover UoN Scholarships, workshops, Film event outgoings such as catering, drinks, gifts, trophies, media etc

Planning for the event needs to commence in the next quarter of 2022-23. No funding will be expended until the 2023-24 budget allocation is adopted by Council.

POLICY IMPLICATIONS

Nil known.

STATUTORY IMPLICATIONS

Nil known.

LEGAL IMPLICATIONS

Council's Corporate Lawyer has reviewed the Blue Heeler Film Festival Terms and Conditions of Entry.

OPERATIONAL PLAN IMPLICATIONS

This meets the 2022-23 Operational Plan outcomes.

RISK MANAGEMENT IMPLICATIONS

All events are assessed for WHS risks as well as consideration of Council's reputation with regards to the screening of appropriate films. The standard of what is deemed to be appropriate is covered in the terms and conditions of entry.



WASTE MANAGEMENT IMPLICATIONS

Where possible, all products purchased for the workshops and the Blue Heeler Film Festival are sustainable and environmentally friendly. Waste Management strategies include the disposal of waste at receptacle points.

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Media and promotion are managed with the UoN and the Blue Heeler Film Festival social media platforms, including facebook, twitter, and instagram.



9.5.2. Federal Government Funding for TROVE

Attachments:	Nil
Responsible Officer:	Shaelee Welchman - Director - Community & Economy
Author:	Lauren Allan (Head Librarian)
Community Plan Issue:	4 - <i>Cultural Vitality</i> 6 - <i>Community Leadership</i> An inclusive and interconnected community where everyone enjoys full participation.
Community Plan Goal:	A culturally rich and diverse Community with strong identities, history and sense of belonging. Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	<i>Not Applicable</i>

PURPOSE

To provide Council with an overview of the potential impact of the withdrawal of Trove Services.

OFFICER'S RECOMMENDATION

Council endorses the following actions:

1. Council makes representation to the Federal Member for Hunter in relation to the need for a sustainable federal funding model for the continuation of free access to the Trove national database and upgrade of the digital archive systems of Trove;
2. Council writes to the Federal Minister for the Arts and the Shadow Minister for Science and the Arts, calling for sustainable funding to ensure the continuation of free access to the Trove national database and upgrade of the digital archive systems of Trove; and
3. Council endorses the actions of the NSW Public Libraries Association in lobbying for additional sustainable funds for the continuation of free access to the Trove national database and upgrade of the digital archive systems of Trove.

Moved: _____ **Seconded:** _____

BACKGROUND

The National Library of Australia (NLA) supports an expansive public digital archive through the provision of Trove. Trove provides access to the NLA collections and the collections of cultural institutions throughout Australia including Libraries, Local Government and Museums. The Muswellbrook Shire Libraries (MSL) play an annual partnership fee to utilise this archive for inter-library loans services, collection catalogue records and local and family research enquires, and contributes to this archive on behalf of the Library service and Muswellbrook Shire Council.



CONSULTATION

New South Wales Public Library Association

Manager Community Services

MANEX

REPORT

In 2022, Trove Collaborative Services (TCS) introduced a new pricing model which raised serious concerns regarding the affordability and ongoing viability of participation in resource sharing for New South Wales public libraries. The change in subscription model has seen approximately 13% of libraries across NSW withdraw their contributions due to the significant fee increases, resulting in implications for the integrity of Trove. The Muswellbrook Shire Libraries have to date received a 70% increase in annual partnership fees since 2021 with anticipated increases continuing into the 2023-24 financial year and beyond. Further funding cuts to the NLA, due in July 2023, will magnify this situation.

In addition, TCS has indicated that they will no longer support the national Document Delivery system (LADD) for resource sharing, raising concerns for library staff about the longer-term impact on inter-library loans (ILLs). ILLs are a vital and core service of public libraries, allowing open, democratic access to quality information for all community members, resulting in inclusive, informed and connected communities.

Without additional Federal funding, the NLA have advised that they will be unable to maintain Trove, which may result in the cancellation or privatisation of this service. The resulting impact on MSL would include an increase in Library staffing requirements for technical support, loss of digital archiving opportunities and a decrease in available resources for local and family history research.

In July 2022, the NSW Public Libraries Association (NSWPLA) wrote to the Minister for the Arts, Hon. Tony Burke, expressing concern regarding the national database being under threat due to the lack of funding, with the last tranche of funding expiring in July 2023. NSWPLA also expressed the association's concern regarding the effect this would have on the community, and stated what a travesty it would be if the single national treasure trove of artefacts, curiosities, and stories from Australia's cultural, community and research institutions, a database of more than 6 billion digital items, is no longer to be fully maintained or kept up to date or, worst case scenario, made unavailable. NSWPLA has not been successful in gaining a meeting with Minister Burke or his representative.

Trove is essential in providing equity of access to information across not only New South Wales, but the whole of Australia and further. It is a world-leading resource, free and available for anyone anywhere to use. Trove's impact on research at all levels is immeasurable and its value to all Australians cannot be underestimated.

It is recommended that Council supports the NSW Public Libraries Association by formally endorsing the actions of the NSW Public Libraries Association in lobbying for additional sustainable funds for the continuation of free access to the Trove national database and upgrade of the digital archive systems of Trove.

OPTIONS

Council may:

1. Endorse all recommendations for action.
2. Decline the recommendations.
3. Propose alternatives.



CONCLUSION

It is recommended that Council endorses the recommendations contained within the report.

SOCIAL IMPLICATIONS

Trove provides an essential service to both Libraries and cultural institutions throughout Australia and collecting, storing and providing access to historical and cultural archives.

FINANCIAL IMPLICATIONS

Nil.

POLICY IMPLICATIONS

Nil.

STATUTORY IMPLICATIONS

Nil.

LEGAL IMPLICATIONS

Nil.

OPERATIONAL PLAN IMPLICATIONS

Nil.

RISK MANAGEMENT IMPLICATIONS

Nil.

WASTE MANAGEMENT IMPLICATIONS

Nil.

COMMUNITY CONSULTATION/MEDIA IMPLICATIONS

Nil.



9.5.3. Community Services

Attachments:	Nil
Responsible Officer:	Shaelee Welchman – Director Community and Economy
Author:	Kim Manwaring – Manager Community Services
Community Plan Issue:	6 - Community Leadership
Community Plan Goal:	24.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.
Community Plan Strategy:	24.1.2 - Appropriate matters are reported to Council in a timely manner in accordance with the Financial Control and Reporting Policy.

PURPOSE

To provide an update on activities in the Community Services section.

OFFICER'S RECOMMENDATION

The information contained in this report be noted.

Moved: _____ **Seconded:** _____

REPORT

MUSWELLBROOK SHIRE LIBRARIES – MUSWELLBROOK AND DENMAN

The Muswellbrook and Denman Branches were attended by **1,934 customers** during January.

Increasing and maintaining library memberships

Muswellbrook and Denman libraries registered **41 new members**.

- Providing opportunities that increase community literacy, both physical and digital
- Home Library:
The Muswellbrook Shire Libraries currently delivers personally selected books, DVDs and Audio books to homebound customers each fortnight. During the month of January this service conducted **1 delivery** and delivered **305 items**.
- Online Engagement:
Over the past month the library has had **4,112** post views on Facebook. Throughout the month the library promoted our current new and recommended items, upcoming events and exhibits.
- Collections:
During January the library added **299 new items** to the physical collections. Over the month the library loaned **7,261 physical items**, **207 eAudio loans**, **170 eBook Loans** and **99 Digital magazine loans**.



- **Creating spaces and programs that meet the needs of members and library visitors**

Program Type		
Type	No. of Programs	Attendance
Literacy and lifelong learning	6	144
Informed and connected citizens	0	0
Digital Inclusion	2	11
Personal development and wellbeing	4	84
Stronger and more creative communities	4	64
Economic and workforce development	0	0
TOTAL	16	303

- Children and Young Adult Programs

The 2022/23 Summer Reading Program closed on January 27th with **34 children registered**.

During the month of January the library hosted a number of children's School Holiday activities including water art, Manga Workshops and LEGO Workshops. These sessions were attended by **199 children and young adults**. The Library also hosted visits from OOSH and the Youth Centre during January. Regular baby rhyme time sessions continued throughout January with **52 attendees**.

- Adults Programs:

Adult programming was placed on hold during January.

The library continued providing tech help sessions and Home Delivery Services throughout the month.

COMMUNITY PARTNERSHIPS

- The NSW Seniors Festival local brochure for the Muswellbrook area was launched this month, the brochure can be found Council website and various organisations around Muswellbrook;
- 2023 Youth Week Grant Application has been lodged;
- Maintain, responded and distribute emails to the Upper Hunter Community Services Interagency;
- Working in with Wonnarua Elder Sharon Edgar Jones and Wonnarua/ Wanaruah/ Wanarruwa Language class to rename the "Hunter Beach" project;
- Finalised the 2022 Wonnarua/ Wanaruah/ Wanarruwa Language Course and starting to plan the 2023 course.

**PARTNERSHIPS & ENGAGEMENT****Visitor Information Centre - Denman**

The VIC Denman continues to be accessed by tourist for information about the area, places to visit where to dine etc.

The VIC is critically short on Volunteers, the Community Services Engagement Officer has been supporting the Centre and continues to implement volunteer recruitment strategies such as liaising with Joblink Plus and other community Services and continued Facebook promotion.

Denman VIC Visitors Statistics - January 2023	
Visitors from:	Number of visitors
NSW Other	123
Muswellbrook LGA	5
Queensland	19
Victoria	2
International	3
Total Visitors	152

* Note that the Visitor Information Centre - Denman was only open for 2 weeks in January, due to IT issues.



10. Minutes of Committee Meetings

10.1. Events Steering Committee Meetings - 17/01/2023 and 31/01/2023

Attachments:	1. Minutes - Events Steering Committee - 17/01/2023 [10.1.1 - 4 pages] 2. Minutes Events Steering Committee - 31/01/2023 [10.1.2 - 2 pages]
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Responsible Officer: Shaelee Welchman - Director - Community & Economy

Author: Michele Sandell-Hay – Governance Officer

Community Plan Issue: 4 - Cultural Vitality

Community Plan Goal: A culturally rich and diverse Community with strong identities, history and sense of belonging.

Community Plan Strategy: 4.3.1 - Develop and implement a program of Shire events to engage more locals and attract more visitors

PURPOSE

To inform Council of the following meetings:

1. Events Steering Committee Meeting held on 17 January, 2023
2. Events Steering Committee Meeting held on 31 January, 2023

OFFICER'S RECOMMENDATION

The minutes for the Events Steering Committee meetings held on 17 January, 2023 and 31 January, 2023 be NOTED.

Moved: _____ **Seconded:** _____

REPORT

The Governance Officer reports that the Events Steering Committee met on 17 January, 2023 and 31 January, 2023.

The minutes of the meetings are attached for the information of the Councillors.

**MINUTES OF THE EVENTS STEERING COMMITTEE MEETING OF THE
MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM,
ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON TUESDAY
17 JANUARY 2023 COMMENCING AT 4.35PM.**

PRESENT: Cr S. Reynolds (Chair), Cr D. Douglas and Cr D. Marshall (VC)

IN ATTENDANCE: Cr J. Lecky, Mr D. Finnigan (Acting General Manager),
Ms S. Welchman (Director - Community & Economy),
Ms C. Middleton (Communications & Media Coordinator),
Mrs F. Wilton (Economic Development Officer), Mr M. Leman
(Innovation Coordinator) & Ms E. Lane (Coordinator Customer
Service & Administration)

1 Apologies

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Douglas that:

The apologies for inability to attend the meeting submitted by Cr J. Drayton be
ACCEPTED.

2 Confirmation of Minutes of Previous Meeting

RECOMMENDED on the motion of Cr D. Douglas and Cr D. Marshall that:

The Minutes of the Events Management Steering Committee Meeting held on 13
December 2022, a copy of which has been distributed to all members, be taken as read
and confirmed as a true record.

3 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Nil

4 Business Arising

4.1 Action List

Australia Day - the run sheet has been developed and Councillor responsibilities
have been defined. The marquee has been costed and the water bottle refill station
finalised. Mr A. Bele will be organise the relay which will consist of Muswellbrook
Shire Councillors and Staff/Representatives, Mines Rescue, Emergency Services
and ARTC. The radio station has declined an invitation. Free tea and coffee will be
available. An Indigenous dance group has been booked in for the day. Cr S.
Reynolds has offered to arrange a free BBQ, and discussions will be continued with
Ms Welchman regarding this.

RECOMMENDED on the motion of Cr D. Douglas and Cr D. Marshall that:

The information contained in the report be noted.



5 Business

5.1 New Years Eve Post Event Report

Cr Reynolds thanked all staff for their hard work and noted the positive feedback from attendees. Thanks is also passed on to Hunter Events Group for their work in organising this event.

Sponsorships to the total value of \$15,000 were received from Reconnecting NSW as well as Bengalla, AGL, and Muswellbrook Coal who are all looking to continue sponsorship next year due to the success of this event.

There was an estimated attendance of 3,500 with food vans and other children's entertainment that were all very popular. Security was managed very well with a combination of security guards and police presence.

An event survey on the night returned 92 responses This data will be used to determine the economic impact from the event. Facebook page reached 10,000 people with positive engagement. Facebook report is attached to the report also.

The cost of the event to Council totalled \$55,000.

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Marshall that:

1. The committee notes the report.
2. A report be presented to Council on the outcome of the event.

5.2 Rock'n the Brook

Mr Leman advised the meeting that the key eligibility requirements for the ticketing website are that it is to be accessible to Muswellbrook Shire Council's residents as a priority. A number of different ticketing platforms were approached and there is no foolproof way to make this available to a restricted audience. 123Tix.com.au has completed similar events and is the most appropriate to meet Council's needs.

Ms Welchman recommends releasing a presale allocation for 1 week prior to regular sales and distributing a password for the community to access these tickets.

Cr Reynolds noted concerns around the use of social media and prefers the use of a QR code distributed to local businesses and suggested reserving 1000 tickets at a cost of \$50 to recoup some cost of the event. A suggestion from Ms Welchman was to have VIP purchasing options where they receive an additional branded merchandise item.

Sponsorship is to be received from businesses with questions still surrounding naming rights requests from the sponsors. Discussions are continuing surrounding this with sponsors are to be confirmed by Friday 27th January, 2023

Discussions were had surrounding the capabilities of the ticketing options such as age restrictions, sponsorship options, transport options.

Discussions around the additional stage included the required distance between the stages, opening acts, the order of acts for each stage. The stage will cost \$7,100 and discussions were had around the cost for all artists to perform. Confirmation will occur at the next meeting. Councillor Marshall asked of the requirements of the second stage with



RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Marshall that:

1. The committee notes the report.
2. The committee approves 123Tix.com.au as our preferred supplier of a suitable ticketing platform with QR codes to be distributed to selected local businesses for the community to purchase tickets.
3. The committee reviews and endorses the Proposed Traffic Map to enable the Traffic Management Plan to be developed and finalised by Traffic Logistics.
4. The committee determine the local artists and program for the period 3pm to 7pm.
5. The committee is to determine if an additional stage (local development stage) is required for this event.

5.3 Council Sponsorship Cattle Dog Muster 2023

Cr Reynolds asked if there was a possibility of Council sponsoring Bluey and Bingo due to their popularity in the 2022 event.

Council sponsored \$10,000 in 2022 and it has increased to \$12,000 for the same sponsorship in 2023.

Council will also provide in-kind support through a number of measures.

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Douglas that:

1. Council supports the Cattle Dog Muster in principle and consider its \$7,500 sponsorship for Bluey & Bingo its preparation of the 2023/24 budget.

Finance Manager Comments: due to the extensive budgetary pressures, Council needs to carefully consider all discretionary spending. I recommend that any decision on this should be postponed until the 2023/24 Budget has been finalised and available resources have been confirmed.

5.4 Australia Day Ceremony 2023

Council staff are booked in to conduct the live streaming through social media. The photographer and videographer will capture the ceremony and the aquatic center activities.

A suggestion from Ms Welchman is to engage Warrior Disability Services to cook a BBQ at an agreed cost.

Cr Reynolds asked to confirm if the spa will be closed at the Muswellbrook Aquatic Centre in order to host the DJ - this is to be confirmed.

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Marshall that:

The information contained in this report be noted.

7 Date of Next Meeting

14 February, 2023



8 Closure

The meeting was declared closed at 5.30pm.

.....
Mr D. Finnigan
Acting General Manager

.....
Cr S. Reynolds
Chairperson

**MINUTES OF THE EVENTS STEERING COMMITTEE MEETING OF THE
MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM,
ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON
COMMENCING TUESDAY 31 JANUARY 2023 AT 4:00PM.**

PRESENT:

Cr S. Reynolds (Chair), Cr D. Douglas, Cr J. Drayton, Cr D. Marshall, Mr D. Finnigan, Ms S. Welchman,

IN ATTENDANCE:

Cr J. Lecky, Ms F. Wilton (Economic Development Officer) and Ms C. Middleton (Communications & Media Co-Ordinator).

1 APOLOGIES

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Douglas that:

The apologies for inability to attend the meeting submitted by Cr J. Drayton and Ms K. Manwarring be ACCEPTED.

2 CONFIRMATION OF MINUTES OF PREVIOUS MEETING

RECOMMENDED on the motion of Cr D. Marshall and Cr D. Douglas that:

The Minutes of the Events Management Steering Committee Meeting held on **17 January 2023**, a copy of which has been distributed to all members, be taken as read and confirmed as a true record.

3 DISCLOSURE OF ANY PECUNIARY AND NON-PECUNIARY INTERESTS

Nil

4 BUSINESS ARISING

4.1 Action List

Australia Day 2023

The event was a huge success with 922 people through the gate at the pool.

The Great Cattle Dog Muster - Community Family Fun Day

The \$7,500.00 sponsorship will include 2 stage shows on the day.

Muswellbrook Chamber of Commerce have offered to recognise Council as an event sponsor given the ongoing kind support.

RECOMMENDED on the motion of Cr D. Marshall and Cr D. Douglas that:

The committee notes the information contained in the report.

5 BUSINESS

5.1 Rock'n the Brook

Ms S. Welchman and Ms F. Wilton provided an overview of the report.

Costing for the Aboriginal dancers to be confirmed.

It was agreed to move forward with Slay Valley and the base and guitar duet.



Jones the Cat appeared to be over 25 years old. An enquiry would be made to confirm their ages. The lead of the band is a music teacher and taught the students from the other EOI.

\$112,000 in sponsorship from BHP, Bengalla, AGL, MALABAR, Coolmore, MACH Energy and Muswellbrook Coal.

Ticket pre-sales to locals and social media will go out 1 February 2023.

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Douglas that:

1. The committee notes the information contained in the report.
2. The committee approves the Rock'n the Brook Event Program.
3. The committee delegates the Acting General Manager and Director Community & Economy to review EOI's for Local Artist Development Stage; and determines if the Local Artist Development Stage is to proceed.
4. The committee to review "smaller stage" specifications and costs; and determine if this stage would be suitable for the Local Artist Development Stage if it is determined as proceeding.
5. The committee approves that the tickets will be available online for local pre-sale for 10 days, accessible via a QR code found at selected local businesses.

5.2 Karoola Park Colour Run

RECOMMENDED on the motion of Cr D. Douglas and Cr D. Marshall that:

The committee notes the information contained in the report.

6 DATE OF NEXT MEETING

17 February 2023

7 CLOSURE

The meeting was declared closed at 5:05pm.

.....
Mr D. Finnigan
Acting General Manager

.....
Cr S. Reynolds
Chairperson



10.2. Muswellbrook Bypass Advisory Committee Meeting - 19/01/2023

Attachments:	1. Minutes - Muswellbrook Bypass Advisory Committee - 19/01/2023 [10.2.1 - 3 pages]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Michelle Sandell-Hay – Governance Officer
Community Plan Issue:	5 - Community Infrastructure
Community Plan Goal:	Effective and efficient infrastructure that is appropriate to the needs of our community.
Community Plan Strategy:	5.4.1 - Maintain and continually improve the Shire's shared pathway networks to increase connectivity.

PURPOSE

To inform Council of a meeting of the Muswellbrook Bypass Advisory Committee Meeting held on 19 January, 2023.

OFFICER'S RECOMMENDATION

The minutes for the Muswellbrook Bypass Advisory Committee meeting held on 19 January, 2023 be NOTED.

Moved: _____ **Seconded:** _____

REPORT

The Governance Officer reports that the Muswellbrook Bypass Advisory Committee met on 19 January, 2023.

The minutes of the meeting are attached for the information of the Councillors.

MINUTES OF THE MUSWELLBROOK BYPASS ADVISORY COMMITTEE MEETING OF THE MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM, ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON COMMENCING THURSDAY 19 JANUARY 2023 AT 4:00PM.

PRESENT: Mr M. Kelly (Chair - MbK Chamber of Commerce), Cr S. Reynolds (Mayor), Cr D. Marshall, Cr R. Scholes, Mr D. Finnigan, Mr M. Papadopoulos (TfNSW), Insp. G. Guiana (MbK Police) and Mr W. Toms (MCCI).

IN Ms K. Scholes (Manager Roads, Drainage and Technical Services) and Ms

ATTENDANCE: E. Lane (Coordinator Customer Service and Administration).

1 Apologies

RECOMMENDED on the motion of Cr S. Reynolds and Insp. G. Guiana that:

The apologies for inability to attend the meeting submitted by Cr R. Mahajan, Mr D. Layzell (Member for Upper Hunter), Ms A. Zycki (TfNSW), Mr M. Denton (RFS) and be ACCEPTED.

2 Confirmation of Minutes of Previous Meeting

RECOMMENDED on the motion of Cr S. Reynolds and Mr W. Toms that:

The Minutes of the Muswellbrook Bypass Advisory Committee Meeting held on **6 October, 2022**, a copy of which has been distributed to all members, be taken as read and confirmed as a true record.

3 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Nil

4 Business Arising

Socio-Economic Impacts - TfNSW

Mr Papadopoulos provided an overview of the report.

Mr Kelly asked if the report being shown was the same as what was provided on 21 October 2022?

Mr Papadopoulos advised that the report is the same as what was provided on 21 October 2022.

Mr Kelly raised his concerns on the age of the data collected in the report when the Muswellbrook Bypass is scheduled to open in 2027, this being 7 years old.

Mr Kelly asked if Transport for NSW intend to update some of the information in the report?

Mr Papadopoulos advised that Transport for NSW does not traditionally redo studies. There may be some further studies that can be done however, the data is not likely to change dramatically. He is happy to look into possibly doing further studies and update the committee at the next meeting.

Mr Toms asked Mr Papadopoulos when there will be some certainty that we can convey that construction will start and finish on a specific date?



Mr Papadopoulos advised that a request for expressions of interest should go out in February 2023 and will short list tender submissions by mid 2023. Early works demolition tender will close 20 January 2023, property acquisition letters will be sent out in February 2023, contracts for utilities will be done in April 2023, Milpera Drive intersection upgrades will be done mid 2023, and the successful tender submission, archaeological salvage and Sandy Creek Road intersection upgrade will be done in the second half of 2023. It is expected that major construction will begin in late 2024 with a focus on completion by late 2027. Allow flexibility on these dates as they are still tentative at this stage.

Mr Kelly asked Mr Papadopoulos if these dates could be forwarded to Council as a draft timetable?

Mr Papadopoulos advised that this would be done.

RECOMMENDED on the motion of Cr R. Scholes and Mr W. Toms that:

The committee notes the information contained in the report.

In Favour: Cr D. Marshall, Cr R. Scholes, Cr S. Reynolds, Mr D. Finnigan, Mr M. Kelly, Inspct. G. Guiana, Mr M. Papadopoulos and Mr W. Toms.

Against: Nil.

Transportation of Wind Turbines

Mr Papadopoulos advised that Energy Corporation has engaged with GHD to complete a study on choke points between the New England REZ and the Central-West Orana REZ. A series of choke points were found, and improvements required have been identified to facilitate these movements. Discussion is being had with the NSW Government about how these improvements will be funded.

RECOMMENDED on the motion of Cr S. Reynolds and Cr D. Marshall that:

The committee will be informed of information and advice surrounding issues associated with the transport of wind turbines at future meetings.

In Favour: Cr D. Marshall, Cr R. Scholes, Cr S. Reynolds, Mr D. Finnigan, Mr M. Kelly, Inspct. G. Guiana, Mr M. Papadopoulos and Mr W. Toms.

Against: Nil.

5 Business

5.1 MUSWELLBROOK BYPASS CENTRAL INTERCHANGE

Mr Finnigan provided an overview of the report.

Mr Kelly asked if there were any financial and technical implications between TfNSW and Council that may delay the process?

Mr Finnigan advised that there are no delays relating to these implications.

Cr Reynolds noted concerns surrounding the realignment of the road to go through an area that has had spontaneous combustion capped by Muswellbrook Coal.

Cr Reynolds asked Mr Papadopoulos whether the ongoing costs and environmental impact has been considered with the realignment?

Mr Papadopoulos advised that he would come back with an answer to that at a later time.



Cr Reynolds noted that there is work that will need to be done on Coal Road where it meets Bowman Street.

Cr Reynolds queried if Transport for NSW would be able to assist with the construction and realignment of this area?

Mr Papadopoulos advised that this was outside the scope of the project and difficult with the current budget restraints. Alternative funding opportunities were suggested such as the Safer Roads Program.

Mr Finnigan mentioned that the GLE Pipeline Committee recently met and that they have spoken with Transport for NSW regarding potential connectivity regarding the Muswellbrook Bypass. Mr Finnigan asked Mr Papadopoulos if he was able to confirm that this contact occurred. Mr Papadopoulos advised that he would speak with them that evening to confirm.

Cr Marshall asked Mr Papadopoulos if there was any success moving the intersection for Milpera Drive to the northern end of the Bypass?

Mr Papadopoulos advised that due to the topography of the land, it was considered less safe and was disregarded.

Mr Kelly asked Mr Papadopoulos if the calling for tenders is purely for construction or if it will also have design elements?

Mr Papadopoulos advised that he believed it be construction only but will confirm at the next meeting.

RECOMMENDED on the motion of Cr S. Reynolds and Cr R. Scholes that:

1. The Committee notes the information contained in the report.
2. The following questions be noted;
 - Have considerations been made regarding the capped spontaneous combustion risk at Muswellbrook Coal?
 - Have the ongoing costs and environmental impact been considered with the realignment of Coal Road?
 - Has Santos made contact with TfNSW?
3. A further report will be submitted to the committee at the next meeting.

6 Date of Next Meeting

9 February 2023

7 Closure

The meeting was declared closed at 4:44pm.

Mr D. Finnigan
Acting General Manager

Mr M. Kelly
Chairperson



10.3. Local Traffic Committee Meeting Minutes - 14/02/2023 & 21/02/2023

Attachments:	1. Minutes - Local Traffic Committee - 14/02/2023 [10.3.1 - 2 pages]
	2. Minutes - Local Traffic Committee - 21/02/2023 [10.3.2 - 1 page]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Imelda Williams – Traffic & Roads Status Officer
Community Plan Issue:	5 - Community Infrastructure
Community Plan Goal:	Effective and efficient infrastructure that is appropriate to the needs of our community.
Community Plan Strategy:	5.1.4 - Maintain and continually improve community infrastructure across the Shire.

PURPOSE

To inform Council of the following meetings:

1. Muswellbrook Shire Local Traffic Committee Meeting held on 14 February, 2023
2. Muswellbrook Shire Local Traffic Committee Meeting held on 21 February, 2023

OFFICER'S RECOMMENDATION

The minutes for the following meetings be NOTED and the recommendations contained therein ADOPTED:

1. Muswellbrook Shire Local Traffic Committee Meeting held on 14 February, 2023
2. Muswellbrook Shire Local Traffic Committee Meeting held on 21 February, 2023

Moved: _____ **Seconded:** _____

REPORT

The Roads Status Officer reports that the following meetings were held:

1. Muswellbrook Shire Local Traffic Committee Meeting held on 14 February, 2023
2. Muswellbrook Shire Local Traffic Committee Meeting held on 21 February, 2023.

The minutes of these meetings are attached for the information of the Councillors.

MINUTES OF THE LOCAL TRAFFIC COMMITTEE MEETING OF THE MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM, ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON TUESDAY 14 FEBRUARY, 2023 COMMENCING AT 1.30PM

PRESENT: Cr D. Marshall (Chair), Mr M. Kelly, Snr Const. A. Sweeney, Ms B. Haverboek, Ms K. Scholes.

IN

ATTENDANCE: Mrs I. Williams (Roads Status Officer), Mr C. Tola and Mrs F. Wilton (Economic Development Officer).

1 Acknowledgement to Country

The Acknowledgement of Country was read by the Chair.

2 Apologies

RECOMMENDED on the motion of Mr M. Kelly and Cr. D. Marshall that:

The apologies for inability to attend the meeting submitted by Cr M. Bowditch be ACCEPTED.

3 Confirmation of Minutes of Previous Meeting

RECOMMENDED on the motion of Cr D. Marshall and Mr M. Kelly that:

The Minutes of the Local Traffic Committee Meeting held on **8 November, 2022** a copy of which has been distributed to all members, be taken as read and confirmed as a true record.

4 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Mr C. Tola declared a non significant pecuniary interest. He is a volunteer with a group that the event organiser has previously run events for.

5 Business Arising

5.1 Investigation into Lane Widths – Ironbark Road and Market Street, Muswellbrook

Mr Kelly requested that the matters listed under General Business from the 8 November 2022 meeting regarding the investigation into the Lane widths in Ironbark Road and Market Street be listed for discussion by the June meeting of the committee.

6 Business

6.1 Road Closures for Rock' n the Brook Music Event

A report was submitted to the Committee seeking approval for the road closures to conduct the Rock'n the Brook music event scheduled for 4 March, 2023.

Discussion took place on this item. Further information was requested.

RECOMMENDED on the motion of Mr M. Kelly and Snr Const. A. Sweeney that:



This matter be deferred for consideration at an Extra-Ordinary Meeting of the Traffic Committee to be held on Tuesday 21 February, 2023.

7 Date of Next Meeting

Extra Ordinary scheduled for 21 February 2023.

14 March, 2023

8 Closure

The meeting was declared closed at 2.27pm.

.....
Cr D. Marshall
CHAIR

**MINUTES OF THE LOCAL TRAFFIC COMMITTEE MEETING OF THE
MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM,
ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON
TUESDAY 21 FEBRUARY, 2023 COMMENCING AT 3.15PM**

PRESENT: Cr M. Bowditch (Chair), Cr D. Marshall, Mr M. Kelly,
Snr Const. A. Sweeney, Ms B. Haverboek, Ms K. Scholes.
IN ATTENDANCE: Ms S. Welchman (Director Community & Economy) & Acting
Inspector M. Boardman (NSW Police), Mrs I. Williams (Roads Status
Officer) and Ms F. Wilton (Economic Development Officer)

1 Acknowledgement to Country

The Acknowledgement of Country was read by Cr Bowditch.

2 Apologies

RECOMMENDED on the motion of Kellie Scholes and Cr M. Bowditch that:

The apologies for inability to attend the meeting submitted by Mr C. Tola be
ACCEPTED.

3 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Nil

4 Business

4.1 Road Closures for Rock' n the Brook Music Event

RECOMMENDED on the motion of Kellie Scholes and Cr M. Bowditch that:

Council uses its delegated authority to approve the closure of the following roads
from approximately 12 noon to midnight on Saturday 4 March 2023:

1. Wilder Street from Maitland Street to Olympic Park;
2. Wilkinson Avenue from Haydon Street to Olympic Park.

Conditional on a S138 Roads Act Approval being obtained from Council with
additional requirements to be complied with at all times for the duration of the event
and

A Road Occupancy Licence to be issued by TfNSW for the event.

VOTE: Unanimous Support

5 Date of Next Meeting

14 March, 2023

6 Closure

The meeting was declared closed at 4.13pm.

.....
Cr M. Bowditch
CHAIR



10.4. Olympic Park Precinct Development Advisory Committee Meeting - 15/02/2023

Attachments:	1. Minutes - Olympic Park Precinct Development Committee - 15/02/2023 [10.4.1 - 3 pages]
Responsible Officer:	Derek Finnigan - Acting General Manager
Author:	Paul Chandler – Recreation & Property Officer
Community Plan Issue:	6 - <i>Community Leadership</i>
Community Plan Goal:	Collaborative and responsive leadership that meets the expectations and anticipates the needs of the community.
Community Plan Strategy:	6.2.1 - Maintain a strong focus on financial discipline to enable Council to properly respond to the needs of the communities it serves.

PURPOSE

To inform Council of a meeting of the Olympic Park Precinct Development Advisory Committee held 15 February 2023.

OFFICER'S RECOMMENDATION

The minutes for the Olympic Park Precinct Development Committee meeting held 15 February 2023 be NOTED.

Moved: _____ **Seconded:** _____

REPORT

The Technical Officer – Parks and Recreation reports that the Olympic Park Precinct Development Committee met on 15 February 2023.

The minutes of the meeting are attached for the information of the Councillors.

MINUTES OF THE OLYMPIC PARK PRECINCT DEVELOPMENT ADVISORY COMMITTEE MEETING OF THE MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM, ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK ON WEDNESDAY 15 FEBRUARY 2023 COMMENCING AT 5.42PM.

- PRESENT:** Cr A. Barry (Chair), Cr G. McNeill, Mr D. Finnigan (Acting General Manager), Mr M. Lysaught (Director - Property & Place), Mr J. Marco (Muswellbrook Junior Rugby League), Mr G. Mather (Muswellbrook Senior Rugby League), Mr P. Benkovic (Muswellbrook Touch Association), Mr T. McTaggart (Olympic Park Tennis Club), Mr A. Greentree (Muswellbrook Cycle Club), Mr M. Jeans (Muswellbrook Amateur RSL Swimming Club), Ms P. King (Park Tennis Club - joined meeting at 6.10pm)
- IN ATTENDANCE:** Mr P. Chandler (Technical Officer - Recreation & Property), Mr I. Skaines (Grants & Community Engagement), Ms S. Welchman (Director - Community & Economy), Ms F. Wilton (Economic Development Officer) and Ms K Randall (Administration Team Leader).

1 Acknowledgement to Country

The Acknowledgement of Country was read by Cr A. Barry.

2 Apologies

Nil

3 Confirmation of Minutes of Previous Meeting

RECOMMENDED on the motion of Mr M. Jeans and Cr G. McNeill that:

The Minutes of the Olympic Park Precinct Development Advisory Committee Meeting held on 13th December 2023 a copy of which has been distributed to all members, be taken as read and confirmed as a true record. Subject to the following amendment:

Item 5.1 Olympic Park Precinct Development Advisory Committee – Independent Community Members

The recommendation to read:

RECOMMENDED on the motion of Cr S. Reynolds and Mr P. Benkovic:

1. The Committee recommends to Council that Mr Gus Mather be appointed as the nominated person for the Muswellbrook Senior Rugby League.
2. Council seeks two independent community representatives on the Committee through Expression of Interest.

4 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Nil



5 Business Arising

Nil

6 Business

6.1 Confirmation of Committee Membership

RECOMMENDED on the motion of Cr G. McNeill and Mr P. Benkovic that:

The information contained in this report be noted.

6.2 Alignment of Grant Funding Milestones

The meeting was advised that the development application with the Regional Planning Assessment Panel had been amended from two stages to one stage and that it was anticipated that Development Application approval would be issued around April 2023.

Mr Lysaught spoke about various grant funding sources and how to potentially align these with milestones and deadlines for the project.

Mr Skaines confirmed funding had been received for lighting at Weeraman fields and Highbrook park, in preparation for relocation of sporting groups during Olympic park upgrade.

Council request Ministerial Variation for the Regional Sport Facility Fund programmes.

RECOMMENDED on the motion of Mr P. Benkovic and Mr A. Greentree that:

The information be noted.

6.3 Rock'n the Brook and Event Management Plans

Ms Welchman advised the Committee of the upcoming Rockn' the Brook music festival being held on 4 March:

- aim to promote and foster local artists in the community;
- finalising event management and traffic management plan;
- test case for how the venue will operate;
- an opportunity for improvement, once precinct is redeveloped;
- liaising with user groups and residents in relation to road closures and potential impact on other facilities.

Ms F. Wilton gave an overview of the event in relation to:

- the traffic management plan, the reconnecting our communities grant funding, postcode events;
- time constraints encountered given the scale of the event;
- street closures for the event
- park within precinct utilised by event staff, vendors



- traffic control/ accessibility parking
- pedestrian maps, parking options/designated council parking facilities
- free hourly loop shuttle service for duration of event
- ticketing platform to share information
- licensed event with designated alcohol area - glass free area - 4 drink maximum
- security staff - bag checks - identification/proof of age checks;
- potential weather impacts on event.

Ms Mather advised that the Rugby League club had a number of questions that they wanted answered and how these should be submitted to which Mr Chandler advised that any questions should be submitted in writing 14 days prior to the meeting.

RECOMMENDED on the motion of Mr Benkovic and Mr Greentree that:
The information contained in this report be noted.

8 Date of Next Meeting

16 March, 2023

9 Closure

The meeting was declared closed at 6.46pm.

Mr D. Finnigan
Acting General Manager

Cr A. Barry
Chairperson



11. Notices of Motion

11.1. Notice of Motion - Cr McNeill

Attachments:	Nil
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Responsible Officer: Derek Finnigan - Acting General Manager

Councillor G. McNeill has indicated his intention to move the following motion at the next Ordinary Council Meeting on 28 February 2023, as follows:

BACKGROUND:

For the purpose of clarification, Resolution Number 222 from the 20 December 2022 Ordinary Council Meeting is as follows:

16.5. Rate of Pay - Regional Planning Panel Community Member

222 RESOLVED on the motion of Cr L. Dunn and Cr J. Lecky that:

Council approves a rate of pay for the community representative on the Regional Planning Panel as:

- a. A base fee of \$500.00 (plus GST and subject to annual CPI increase) per application (this assumes 6hrs of meeting preparation and attendance time);*
- b. An hourly rate of \$78.70 (plus GST and subject to annual CPI increase) for each hour of additional meeting preparation and attendance time required after the first 6 hours; and*
- c. An allowance for vehicle use based on the cents per kilometre expense calculation method published by the ATO.*

In Favour: Cr J. Lecky, Cr A. Barry, Cr L. Dunn, Cr G. McNeill, Cr R. Mahajan, Cr R. Scholes and Cr B. Woodruff.

Against: Cr M. Bowditch and Cr J. Drayton.

MOTION:

In relation to Resolution Number 222, I move the following alterations:

Council approves a rate of pay for ~~the~~ community representatives on the Regional Planning Panel as:

- a. A base fee of ~~\$500.00~~ **\$600.00 per determination (plus GST and subject to annual CPI increase) per application (this assumes 6hrs of meeting preparation and attendance time);**
- b. An hourly rate of ~~\$78.70~~ **\$80.00** (plus GST ~~and subject to annual CPI increase~~) for each hour of ~~additional~~ meeting preparation and attendance time required, ~~after the first 6 hours~~ **payable following the completion of the determination;** and
- c. An allowance for vehicle use based on the cents per kilometre expense calculation method published by the ATO.
- d. **Payments are capped to a maximum of \$2000 per determination**

Moved: _____ Seconded: _____



12. Councillors Reports

13. Written Questions

13.1. Investigation of Installation of Retaining Wall/Levee From Muscle Creek to Beyond Barn Vets

Attachments: 1. Muswellbrook FRM S& P [13.1.1 - 143 pages]

Responsible Officer: Derek Finnigan - Acting General Manager

At the 22 November 2022 Ordinary Council Meeting, Cr Bowditch asked the following question:

Can Council investigate the cost of installing a retaining wall/levee from Muscle Creek to beyond Barn Vets to protect residents from a 1 in 20 year flood event?

MOTION

Council notes the information contained in the report.

Moved: _____ **Seconded:** _____

RESPONSE BY GROUP MANAGER

A review of the Muswellbrook Flood Risk Management Strategy and Plan (MFRMP), April 2019, has been undertaken considering the subject area known as the "Sydney Street Levee Option" (*shown in Figure 6-2, below*) for flood events greater than the requested 20 Year Average Recurrence Interval (ARI) (namely the 100 year ARI flood event), and was determined on the cost to benefit ratio as less than 1, to be ranked as a low priority compared to alternative levee options.

Higher priority levee options, such as the Golf Course Levee Bund was determined to have a cost to benefit ratio significantly higher than 1 and rated as a high priority for construction.

Muswellbrook Shire Council has also been contacted by the Department of Public Works to discuss opportunities for grant funding from a total pool of \$14 Million to determine best opportunities to provide, improve and stabilise levees, through which the investigation work has already been completed. Details of the Muswellbrook MFRMP have been submitted for inclusion in the assessment across NSW Councils, with Council to be contacted regarding the success of any funding opportunities. These works will be coordinated and undertaken by the Department of Public Works.

Additional detail relating to the review and subsequent conclusions from the Levee options assessed in the MFRMP noted the following:

p ii Muswellbrook is now protected by a 1.16 km levee that was constructed in 1992 and provides significant flood relief for events up to the 500yr ARI. It should be noted that while the levee protects Muswellbrook from upstream flooding, tailwater flooding in events greater than the 10 yr ARI still results in floodwaters backing up from the end of the Scott / Brook Street.

p iii Flood behaviour for the study area was quantified during the FRMS&P in three studies



including:

- *Flood Study for Muscle Creek (RHDHV, 2017c)*
- *Overland Flow study for Denman (RHDHV, 2017b)*
- *Flood Study Revision for the Hunter River - Muswellbrook to Denman (RHDHV, 2017a)*

p iv A summary of the location and frequency of above floor property inundation in the study area is presented in Section 4.2.2. The assessment shows that:

- *In an extreme flood (i.e. the PMF), 1239 properties in the study area are inundated above floor level. Of these properties, 659 (53% of properties) are on the Hunter River floodplain, 412 (33% of properties) are in the township of Denman, and 168 affected by local flooding from the Muscle Creek catchment.*
- *Similarly, in the rare, 0.2% AEP (500-year ARI) event, 360 properties are inundated above floor level. Of these properties, 274 (77% of properties) are on the Hunter River floodplain, 15 (3% of properties) are in the township of Denman and 71 properties are affected by local flooding from the Muscle Creek catchment.*
- *During the 1% AEP (100-year ARI) event, 220 properties are inundated above floor level. Of these properties, 175 (80% of properties) are on the Hunter River floodplain, 38 (19% of properties) are affected by local flooding from the Muscle Creek catchment with only 7 properties affected in the township of Denman.*
- *During the 5% AEP (20-year ARI) event, 37 properties are inundated above floor level. Of these properties, 20 (58% of properties) are on the Hunter River floodplain with the remainder affected by local flooding from Muscle Creek. No properties are flooded above floor level in the township of Denman.*
- *During the 10% AEP (10-year ARI) event, no properties are inundated above floor level.*

p vi Recommended Floodplain Risk Management Options

An analysis of mitigation options for the Hunter River HRS1 (Muswellbrook Backwater Levee) HRS2 (Sydney Street Levee) shows that they result in a significant reduction in flood damages (between \$1.45 and \$2.66 Million). However, due to the high cost of implementing such measures, all benefit/cost (B/C) ratios are significantly below unity (one) and hence would not be considered for implementation on a solely economic basis and have been given a low priority in the floodplain risk management plan (FRMP). HRS3 (Channel Vegetation Removal) is not recommended in the FRMP as the environmental damage resulting from this option means that it is unlikely to be approved by the land management authority. (See Muswellbrook FRMP for further information)



Figure 6-1: Outline Details of HRS1 – Muswellbrook Backwater Levee Option

- NB: 1) Extend existing levee by 820m with a crest level of 145.8 m AHD to 145.6 m AHD
2) A 3.6m x 3.6m culvert with flapped outfall is required to drain Possum Gully catchment.
3) A typical earth embankment design with a 3m wide crest and 1 in 4 batter is appropriate
4) An allowance for 65m of sheet piling is included to reduce the levee footprint in the vicinity of the two road areas



Figure 6-2: Outline Details of HRS2 – Sydney Street Levee Option

- NB: 1) 840 m earth levee along the banks of the Hunter River (Sydney St to Sydney St) with a crest level of 145.5 m AHD to 144.1 m AHD including allowance for local drainage.
2) To minimise property disturbance a masonry wall would be 555m parallel to Maitland Street, tying into higher ground south of Francis Street
3) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate for (1), while a masonry wall with 2m wide footing is appropriate for (2).
4) An allowance for temporary flood barriers is required for the 4 road crossings

Both of the structural mitigation options for the Muscle Creek MC1 (Enhance creek bank adjacent to golf course) or MC2 (Golf Course flood bund) are able to significantly reduce flood risk in Muswellbrook. Both benefit/cost (B/C) ratios are significantly above unity (one) and hence should be considered for implementation on an economic basis

and have been given a medium-high priority in the floodplain risk management plan (FRMP). While option MC2 costs slightly more than MC1, (\$1.1 Million vs \$0.84 Million), MC2 provides greater reduction in flood damages (\$1.93 Million vs \$1.83 Million). However, while the B/C ratio of MC1 is slightly higher than MC2 (2.18 vs 1.76), because MC2 is able to provide flood storage, it provides a greater degree of protection in more extreme events and despite the additional cost is considered to be the favourable option in terms of reducing flood risk. MC3 (additional Muscle Creek vegetation management) does not adequately reduce flood risk and is not recommended in the FRMP.”



Figure 6-4: Outline Details of MC1 – Enhance Creek Bank adjacent to Golf Course

- NB: 1) Bell Street Levee/Bank is 220m long and is typically < 1m high, though ~40m is up to 1.5m in height assuming a crest height of 148.3 m AHD
- 2) The Golf Course Drain Levee/Bank is 175m long and is typically < 0.5m high, though the ~25m length that would fill the drainage ditch is up to 3.0m high assuming a crest height of 148.5 m AHD. Provision of a 1.2m diameter pipe (and non-return valve) has been included to allow drainage of the golf course
- 3) Railway levee/bund is 200m long and 1m high – this is an optional bund to prevent water flowing north for events > 1% AEP.
- 4) A 90m bund on the northern creek bank protects the northern approach to the Bell St Bridge and is up to 1.5m high assuming a crest level of 149.0 m AHD
- 5) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate



Figure 6-6: Outline Details of MC2 – Muswellbrook Golf Course Flood Bund

NB: 1) The Golf Club Levee/Bund is 330m long and is typically 2 to 2.5 m high.

2) Railway levee/bund is 200m long and 1m high – this is an optional bund to prevent water flowing north for events > 1% AEP.

3) A 90m bund on the northern creek bank protects the northern approach to the Bell St Bridge and is up to 1.5m high assuming a crest level of 149.0 mAHOD

4) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate



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Author(s): Rohan Hudson and Ben Patterson

Drafted by: Rohan Hudson

Checked by: Ben Patterson

Date / initials:

Approved by: Ben Patterson

Date / initials:



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EXECUTIVE SUMMARY

Introduction

Muswellbrook and Denman are located in the Upper Hunter Region of New South Wales approximately 110 km north west of Newcastle. Muswellbrook is situated at the confluence of the Hunter River and Muscle Creek, while Denman is located on the western edge of the Hunter River Floodplain. Flooding in the study area can occur from a range of flood mechanisms including the: Hunter River; Muscle Creek; and the local Denman catchment.

Muswellbrook Shire Council (Council) is responsible for flood risk management and local land use planning within the Local Government Area (LGA). Council has commissioned Royal HaskoningDHV (RHDHV) to produce the Muswellbrook Floodplain Risk Management Study and Plan (FRMS&P) on behalf of Council and The NSW Office of Environment and Heritage (OEH). The project has been conducted under the state assisted Floodplain Management Program and received state financial support.

The primary purpose of the FRMS&P is to reduce risk to life and property by identifying, assessing and comparing various risk management options whilst considering opportunities for environmental enhancement as part of the mitigation works (NSW State Government, 2005).

The FRMS&P included provision for a Flood Study for Muscle Creek and an Overland Flow study for Denman as well as a Flood Study Revision for the Hunter River (Muswellbrook to Denman). The Flood Study Revision included model re-calibration and validation as well as updating the model to use the latest Australian Rainfall and Runoff (ARR) 2016 guidelines and techniques.

History of Flooding in Muswellbrook and Denman

It is generally agreed that the largest flood to have been experienced in Muswellbrook and Denman occurred in 1870 (estimated discharge 5900 m³/s). The largest flood to have been formally recorded occurred in February 1955 (recorded discharge 5013 m³/s). The event had an estimated Average Recurrence Interval (ARI) of 500 years. Large areas within the urban centres of Muswellbrook and Denman were inundated during the event.

Glenbawn Dam, located in the upper catchment of the Hunter River some 20 kilometres northeast of Muswellbrook, was under construction during the 1955 flood event. However, the dam was not in full operation until 1958. The dam has a catchment area of approximately 1290 square kilometres (31% of the Hunter catchment at Muswellbrook and 28% of it at Denman) and an approximate storage volume of 750 gigalitres of which 120 gigalitres is dedicated to flood storage. The dam has significantly reduced the flood risk characteristics along the Hunter River downstream. Despite the presence of the dam, further significant flood events occurred in Muswellbrook and Denman in February 1971, January 1976, August 1998, November 2000 and June 2007; although it should be noted that the inundation that occurred during the June 2007 flood event was primarily the result of flooding from Muscle Creek, which feeds into the Hunter River at Muswellbrook. The 1971 event is estimated to be a 50-100 yr ARI magnitude while the other Hunter River events were of the order of 20-50 yr ARI. The June 2007 rainfall on Muscle Creek was estimated to be an approximate 50 yr ARI event.

Muswellbrook is now protected by a 1.16 km levee that was constructed in 1992 and provides significant flood relief for events up to the 500yr ARI. It should be noted that while the levee protects Muswellbrook from upstream flooding, tailwater flooding in events greater than the 10 yr ARI still results in floodwaters backing up from the end of the Scott / Brook Street.

The Denman Levee is approximately 2.4km long and was constructed in 1988 and protects Denman from flooding for events up to the 500yr ARI, provided the Crinoline Road temporary flood barrier is used for events larger than the 100yr ARI.

Community Consultation

Community consultation was undertaken to inform the community about the development of the Floodplain Risk Management Study, its likely outcomes as well as improving the community's awareness and readiness for flooding. The consultation process provided an opportunity to collect information on the community's flood experience, their concerns on flooding issues and to collect feedback and ideas on potential floodplain management measures and other related issues. The key elements of the consultation program involved:

- Consultation with the Floodplain Management Committee through meetings, presentations and workshops;
- Distribution of questionnaires and information brochures;
- Community information sessions; and
- Public exhibition of the Draft Floodplain Risk Management Study and Plan.

Flooding Behaviour

Flood behaviour for the study area was quantified during the FRMS&P in three studies including:

- Flood Study for Muscle Creek (RHDHV, 2017c)
- Overland Flow study for Denman (RHDHV, 2017b)
- Flood Study Revision for the Hunter River - Muswellbrook to Denman (RHDHV, 2017a)

Flood extents from each individual flood mechanism were combined to produce a single envelope of design flood extents which represented the magnitude of flooding for a given frequency (i.e. annual exceedance probability (AEP) or average recurrence interval (ARI)) as discussed in **Section 4.1**

The Hunter River catchment area upstream of Muswellbrook is approximately 3,370 km² while at Denman the total catchment area is approximately 4,510 km². The Goulburn River flows into the Hunter River just downstream of Denman adding an additional 7,800 km² catchment inflow at this location.

The property inundation assessment (refer **Section 4.2**) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), some 20 properties are flooded in the 5% AEP (20yr ARI), 175 properties are flooded in the 1% AEP (100yr ARI) and 659 properties are estimated to be flooded in the PMF. Due to the large size of the catchment, longer 24-48 hour rainfall events are required to cause significant flooding in the study area from the Hunter River catchment.

Muscle Creek drains 92 km² of catchment upstream of Muswellbrook bringing flows centrally through the township of Muswellbrook before joining the Hunter River. It should be noted that flooding in as little as the 5% AEP (20yr ARI) event can inundate the only two roads connecting the northern and southern parts of Muswellbrook creating a potential issue for emergency services.

The property inundation assessment (refer **Section 4.2**) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), some 17 properties are flooded in the 5% AEP (20yr ARI), 38 properties are flooded in the 1% AEP (100yr ARI) and 168 properties are estimated to be flooded in the PMF. Due to the moderate size of the catchment, while longer (36 hour) rainfall events are required to cause critical flood levels, shorter duration events 2-12 hours may also produce flash flooding during intense rain events.

The township of Denman receives runoff from a local catchment area that extends from the Denman Levee to a ridge line that is located approximately 2 km to the west of the township. The Northern Catchment has a total area of 3.3 km² and drains to the east through two discrete channels that do not enter the existing residential areas. The Southern Catchment has a total area of approximately 7.2 km² and drains through a number of discrete channels and overland flow paths towards the township of Denman. The 2 hour duration event was identified as producing the highest peak flows and flood levels within the majority of the study area.

The property inundation assessment (refer **Section 4.2**) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), 3 properties are flooded in the 2% AEP (50yr ARI), 7 properties are flooded in the 1% AEP (100yr ARI) and 412 properties are estimated to be flooded in the PMF, though most of these are due to the Hunter River overtopping the Levee and not the local catchment flood mechanism.

Property Inundation Assessment

A summary of the location and frequency of above floor property inundation in the study area is presented in **Section 4.2.2**. The assessment shows that:

- In an extreme flood (i.e. the PMF), 1239 properties in the study area are inundated above floor level. Of these properties, 659 (53% of properties) are on the Hunter River floodplain, 412 (33% of properties) are in the township of Denman, and 168 affected by local flooding from the Muscle Creek catchment.
- Similarly, in the rare, 0.2% AEP (500-year ARI) event, 360 properties are inundated above floor level. Of these properties, 274 (77% of properties) are on the Hunter River floodplain, 15 (3% of properties) are in the township of Denman and 71 properties are affected by local flooding from the Muscle Creek catchment.
- During the 1% AEP (100-year ARI) event, 220 properties are inundated above floor level. Of these properties, 175 (80% of properties) are on the Hunter River floodplain, 38 (19% of properties) are affected by local flooding from the Muscle Creek catchment with only 7 properties affected in the township of Denman.
- During the 5% AEP (20-year ARI) event, 37 properties are inundated above floor level. Of these properties, 20 (58% of properties) are on the Hunter River floodplain with the remainder affected by local flooding from Muscle Creek. No properties are flooded above floor level in the township of Denman.
- During the 10% AEP (10-year ARI) event, no properties are inundated above floor level.

Flood Damages Assessment

The Average Annual Damage (AAD) is the main comparative factor that is derived from the flood damages assessment with which to evaluate the effectiveness of proposed mitigation options. The AAD represents the estimated direct tangible damages sustained every year on average over a given 'long' period of time and is determined using the full range of flood events previously considered in the FRMS. A summary of flood damages (AAD Contribution) and property inundation is presented in **Section 4.2.3** and shows:

- In the 1% AEP (100-year ARI) event, it is estimated that \$20.8 Million of tangible flood damages would occur in the study area. The majority (i.e. 79%, \$16.9 Million) of these damages are attributed to main stream flooding on the Hunter River floodplain. During a 1% AEP event, flood damages from Muscle Creek are estimated to be \$3.0 Million, and for the township of Denman approximately \$1.6 Million.
- In the 1% AEP (100-year ARI) event, residential properties make up 93% (i.e. \$20.0 Million) and non-residential (i.e. either commercial or industrial) properties estimated to incur an estimated \$1.5 Million worth of flood damages.
- With the exception of the PMF event, the majority (greater than 75%) of flood damages occur in the Hunter River floodplain area with the Muscle Creek area accounting for most of the remainder and the Denman area accounting for typically less than 10% of the damaged properties. During the PMF event, however, the number of properties with above floor flooding in the Denman area increases substantially accounting for 35% of the total.
- Residential properties account for between 89% and 96% of the flood damage costs for events greater than the 10% AEP. For the 10% AEP, flood damage costs are entirely related to residential properties.

Planning and Development Controls

Council's existing and proposed DCP provides general provisions relating to all the floodplains and specific provisions relating to individual floodplains which are subject to a Floodplain Management Plan. Some minor revisions to the proposed DCP are recommended based on the adopted FRMS&P for Muswellbrook and the associated flood risk mapping derived in this study. In particular the DCP should be updated to be consistent with recent NSW DoP guidance as discussed in **Section 5.2**.

Floodplain Management Options Considered

Measures which can be employed to mitigate flooding and reduce flood damages can be separated into three broad categories including: **flood**, **property** and **response** modification measures. The following mitigation options were considered applicable/suitable for reducing flood risk in the study area, and were therefore the subject of a detailed assessment (including flood damages and cost/benefit analysis) as part of this FRMS in **Section 6.4**.

Flood modification measures

- HRS1 - Backwater Levee Option – Section 6.4.1
- HRS2 - Sydney Street Option – Section 6.4.2
- HRS3 - Channel Vegetation Removal – Section 6.4.3
- MC1 - Enhance creek bank adjacent to golf course – Section 6.4.4
- MC2 - Golf course flood bund – Section 6.4.5
- MC3 - Channel vegetation management – Section 6.4.6
- D1 - Blockage / maintenance policy to unblock 2 Virginia St (Denman) culverts – Section 6.4.7
- D2 - Upgrade to Virginia St (Denman) culvert (north) - Section 6.4.8

Property modification measures

- P1 - Voluntary House Raising and Voluntary Purchase (properties below 1% AEP) - Section 6.4.9
- P2 - Voluntary House Raising and Voluntary Purchase (properties below 2% AEP) - Section 6.4.10
- P3 - Voluntary House Raising and Voluntary Purchase (properties below 5% AEP) - Section 6.4.11

Response modification measures

FW1 - Flood Warning System - The development of a flood warning system for Muscle Creek is presented in detail in Section 7.

Recommended Floodplain Risk Management Options

An analysis of mitigation options for the Hunter River HRS1 (Muswellbrook Backwater Levee) HRS2 (Sydney Street Levee) shows that they result in a significant reduction in flood damages (between \$1.45 and \$2.66 Million). However, due to the high cost of implementing such measures, all benefit/cost (B/C) ratios are significantly below unity (one) and hence would not be considered for implementation on an a solely economic basis and have been given a low priority in the floodplain risk management plan (FRMP). HRS3 (Channel Vegetation Removal) is not recommended in the FRMP as the environmental damage resulting from this option means that it is unlikely to be approved by the land management authority.

Both of the structural mitigation options for the Muscle Creek MC1 (Enhance creek bank adjacent to golf course) or MC2 (Golf Course flood bund) are able to significantly reduce flood risk in Muswellbrook. Both benefit/cost (B/C) ratios are significantly above unity (one) and hence should be considered for implementation on an economic basis and have been given a medium-high priority in the floodplain risk management plan (FRMP). While option MC2 costs slightly more than MC1, (\$1.1 Million vs \$0.84 Million), MC2 provides greater reduction in flood damages (\$1.93 Million vs \$1.83 Million). However, while the B/C ratio of MC1 is slightly higher than MC2 (2.18 vs 1.76), because MC2 is able to provide flood storage, it provides a greater degree of protection in more extreme events and despite the additional cost is considered to be the favourable option in terms of reducing flood risk. MC3 (additional Muscle Creek vegetation management) does not adequately reduce flood risk and is not recommended in the FRMP.

If MC1 or MC2 are not likely to be implemented within a 2 to 5 year timeframe, then a flood warning system (FW1) is strongly recommended to reduce risk to life from rapidly rising floodwaters that sweep through residential areas of Muswellbrook to the south of Muscle Creek and can isolate the southern side of town as frequently as the 5% AEP flood event.

Options D1 (Blockage / maintenance policy to unblock 2 Virginia Street culverts) and D2 (Upgrade to Virginia Street culvert (north)) investigated two options to reduce flood risk and damages in Denman. Due to the low cost of D1 and ability to protect 2 properties from above floor flooding and 2 properties from under floor flooding in the 1% AEP event it has been given a medium to high priority in the FRMP. The low B/C associated with D2 means it has not been recommended in the FRMP.

Mitigation option P3 (VHR of 12 properties and VP of 6) produces a B/C ratio 0.84 and should be considered to reduce flood risk in the study area. Further analysis is recommended to identify which of the VHR/VP properties are in a high risk area and should be prioritised.

Draft Muswellbrook and Denman Floodplain Risk Management Plan

The following table forms an action list of the draft Muswellbrook to Denman Floodplain Risk Management Plan (the Plan). The objective of the Plan is to recommend a range of property, response and flood modification measures to mitigate the existing and future flood affectation in the study area.

The Plan (as detailed in **Section 8**) should be regarded as a dynamic instrument requiring review and modification over time. The catalyst for change could include new flood events and experiences, legislative change, alterations in the availability of funding or changes to the area's

planning strategies. In any event, a thorough review every five years is warranted to ensure the ongoing relevance of the Plan.

Mitigation Measures Recommended for Implementation

Measure*	Description	Estimated Capital Costs and (Ongoing Costs)	Responsibility and Funding	Priority / Time frame
MC1¹ or MC2¹	Muscle Creek Enhance creek bank adjacent to golf course	\$840,000	Council and OEH	Medium - High 2-5 years ¹
	Golf course flood bund	\$1,100,000		
FW1¹	Flood warning system for Muscle Creek	\$50,000 to \$100,000 (\$5000/yr)	Council and OEH	Medium - High 2-3 years ¹
EM1	Emergency Management Planning (develop a Local Flood Plan)	SES and Council staff time of ~\$10,000	SES	High <1 years
P3³	Consider VP and/or VHR for significant risk properties currently experience above floor flooding in the 5% AEP flood event	The VHR of 12 properties and VP of 6 properties is estimated to cost \$2.40 Mil. Further analysis is recommended to identify which of the VHR/VP properties are in a high risk area and should be prioritised	VP – Council and OEH VHR - Property owner and OEH	Low-Medium <2 years
P4	Update the LEP	Council staff time of \$5,000-10,000	Council	High <1 years
D1	Blockage / maintenance policy to unblock 2 Virginia St (Denman) culverts	\$50,000 over 50 years	Council	Medium - High <1 years
EM2	Community Flood Education	Council / SES staff time ~\$10,000	Council / SES.	Medium 2-5 years
HRS1	Muswellbrook Backwater Levee	\$2.25 Million	Council and OEH	Low 2-10 years ²
HRS2	Sydney Street Levee	\$3.5 Million	Council and OEH	Low 2-10 years ²

Notes: * details of the mitigation measures are provided in **Table 6-21** and **Section 6.4**

VP = Voluntary Purchase, VHR = Voluntary House Raising

1) If MC1 or MC2 are not likely to be implemented within a 2 to 5 year timeframe, then a flood warning system is recommended to reduce risk to life from rapidly rising floodwaters that sweep through residential areas of Muswellbrook to the south of Muscle Creek and can isolate the southern side of town as frequently as the 5% AEP flood event.

2) Due to the high cost and low B/C ratio of these options they would require long term planning and it may be difficult to obtain funding from OEH until higher priority flood risks in NSW have been dealt with.

3) A desktop study into the prioritisation of all at risk properties suitable for VP or VHR should be conducted.

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Appendices

Appendix A – Muswellbrook FRMS - Compendium of Flood Maps

Appendix B – Mitigation Option Cost Calculations

Abbreviations and Glossary of Terms

Abbreviations	
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARI	Average Recurrence Interval
AR&R87	Australian Rainfall and Runoff (1987)
AR&R16	Australian Rainfall and Runoff (2016) Major Update
DEM	Digital Elevation Model (a technique to define ground surface elevation data on a grid)
DoP	NSW Department of Planning
FLC	Form Loss Co-efficient (i.e. structure hydraulic loss parameter)
IEAust	Institution of Engineers Australia
IFD	Intensity Frequency Distribution
FRMS&P	Floodplain Risk Management Study and Plan
LiDAR/ALS	Light Detection and Ranging (method used to collect ground surface elevation data using an aircraft)
MHL	Manly Hydraulic Laboratory
OEH	NSW Office of Environment and Heritage
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
RCBC	Reinforced Concrete Box Culvert
RCP	Reinforced Concrete Pipe
RHDHV	Royal HaskoningDHV
1D	One-dimensional (i.e. a flood model based on cross-section, pipe or structure information only)
2D	Two-dimensional (i.e. a flood model which is based on a full description of the ground terrain and is not restricted to cross-section data only)

Glossary of Terms	
Annual exceedance probability (AEP)	The chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage. For example, if a peak flood discharge of 500 m ³ /s has an AEP of 5%, it means that there is a 5% chance (i.e. a 1 in 20 chance) of a peak discharge of 500 m ³ /s (or larger) occurring in any one year. (see also average recurrence interval)
Australian Height Datum (AHD)	National survey datum corresponding approximately to mean sea level.
Average recurrence interval (ARI)	The long-term average number of years between the occurrence of a flood as big as (or larger than) the selected event. For example, floods with a discharge as great as (or greater than) the 20yr ARI design flood will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event. (see also annual exceedance probability)

Catchment	The catchment at a particular point is the area of land that drains to that point.
Design flood	A hypothetical flood representing a specific likelihood of occurrence (for example the 100yr ARI or 1% AEP flood).
Development	Existing or proposed works that may or may not impact upon flooding. Typical works are filling of land, and the construction of roads, floodways and buildings.
Discharge	The rate of flow of water measured in terms of volume per unit time, for example, cubic metres per second (m ³ /s). Discharge is different from the speed or velocity of flow, which is a measure of how fast the water is moving. For example meters per second (m/s)
Flood	Relatively high river or creek flows, which overtop the natural or artificial banks, and inundate floodplains and/or coastal inundation resulting from super elevated sea levels and/or waves overtopping coastline defences.
Flood Behaviour	The pattern / characteristics / nature of a flood.
Flood fringe	Land that may be affected by flooding but is not designated as floodway or flood storage
Flood hazard	The potential risk to life and limb and potential damage to property resulting from flooding. The degree of flood hazard varies with circumstances across the full range of floods.
Flood level	The height or elevation of floodwaters relative to a datum (typically the Australian Height Datum). Also referred to as "stage".
Flood liable land	See flood prone land
Flood plain	Land adjacent to a river or creek that is periodically inundated due to floods. The floodplain includes all land that is susceptible to inundation by the probable maximum flood (PMF) event.
Flood plain management	The co-ordinated management of activities that occur on the floodplain
Flood plain risk management plan	A document outlining a range of actions aimed at improving floodplain management. The plan is the principal means of managing the risks associated with the use of the floodplain. A floodplain risk management plan needs to be developed in accordance with the principles and guidelines contained in the NSW Floodplain Management Manual. The plan usually contains both written and diagrammatic information describing how particular areas of the floodplain are to be used and managed to achieve defined objectives
Flood planning levels (FPL)	Flood planning levels selected for planning purposes are derived from a combination of the adopted flood level plus freeboard, as determined in floodplain management studies and incorporated in floodplain risk management plans. Selection should be based on an understanding of the full range of flood behaviour and the associated flood risk. It should also take into account the social, economic and ecological consequences associated with floods of different severities. Different FPLs may be appropriate for different categories of landuse and for different flood plans. The concept of FPLs supersedes the "standard flood event". As FPLs do not necessarily extend to the limits of flood prone land, floodplain risk management plans may apply to flood prone land beyond that defined by the FPLs.
Flood prone land	Land susceptible to inundation by the probable maximum flood (PMF) event. Under the merit policy, the flood prone definition should not be seen as necessarily precluding development. Floodplain Risk Management Plans should encompass all flood prone land (i.e. the entire floodplain).
Flood source	The source of the floodwaters.
Flood storage	Floodplain area that is important for the temporary storage of floodwaters during a flood.
Floodway	A flow path (sometimes artificial) that carries significant volumes of floodwaters during a flood.
Freeboard	A factor of safety usually expressed as a height above the adopted flood level thus determining the flood planning level. Freeboard tends to compensate for factors such as wave action, localised hydraulic effects and uncertainties in the design flood levels.
Geomorphology	The study of the origin, characteristics and development of land forms

Gauging (tidal and flood)	Measurement of flows and water levels during tides or flood events.
Historical flood	A flood that has actually occurred
Hydraulic	The term given to the study of water flow in rivers, estuaries and coastal systems
Hydrodynamic	Pertaining to the movement of water
Hydrograph	A graph showing how a river or creek's discharge changes with time.
Hydrographic survey	Survey of the bed levels of a waterway.
Hydrologic	Pertaining to rainfall-runoff processes in catchments
Hydrology	The term given to the study of the rainfall-runoff process in catchments.
Isohyet	Equal rainfall contour
Morphological	Pertaining to geomorphology
Peak flood level, flow or velocity	The maximum flood level, flow or velocity that occurs during a flood event.
Pluviometer	A rainfall gauge capable of continuously measuring rainfall intensity
Probable maximum flood (PMF)	An extreme flood deemed to be the maximum flood likely to occur.
Probability	A statistical measure of the likely frequency or occurrence of flooding.
Riparian	The interface between land and waterway. Literally means "along the river margins"
Runoff	The amount of rainfall from a catchment that actually ends up as flowing water in the river or creek.
Stage	See flood level
Stage hydrograph	A graph of water level over time
Sub-critical	Refers to flow in a channel that is relatively slow and deep
Topography	The shape of the surface features of land
TUFLOW	A hydraulic model that is used to simulate flood events.
Velocity	The speed at which the floodwaters are moving. A flood velocity predicted by a 2D computer flood model is quoted as the depth averaged velocity, i.e. the average velocity throughout the depth of the water column. A flood velocity predicted by a 1D or quasi- 2D computer flood model is quoted as the depth and width averaged velocity, i.e. the average velocity across the whole river or creek section.
Water level	See flood level

PART A – FLOODPLAIN RISK MANAGEMENT STUDY

1 Introduction

Muswellbrook Shire Council (Council) is responsible for flood risk management and local land use planning within the Local Government Area (LGA). Council has commissioned Royal HaskoningDHV (RHDHV) to produce the Muswellbrook Floodplain Risk Management Study and Plan (FRMS&P) on behalf of Council and The NSW Office of Environment and Heritage (OEH). The project has been conducted under the state assisted Floodplain Management Program and received state financial support.

1.1 Study Objectives

The primary purpose of the FRMS&P is to reduce risk to life and property by identifying, assessing and comparing various risk management options whilst considering opportunities for environmental enhancement as part of the mitigation works (NSW State Government, 2005). This study assessed a suite of flood risk management measures and their associated tangible and intangible costs and determined a range of options for inclusion in the Floodplain Risk Management Plan and potential future implementation.

1.1.1 *Flood Studies and Flood Study Revisions*

The FRMS&P included provision for a Flood Study for Muscle Creek and an Overland Flow study for Denman as well as a Flood Study Revision for the Hunter River (Muswellbrook to Denman). The Flood Study Revision included model re-calibration and validation as well as updating the model to use the latest ARR 2016 guidelines and techniques.

The Flood Study for Muscle Creek and an Overland Flow study for Denman reports were delivered to Council in January 2017, while the Flood Study Revision report for the Hunter River (Muswellbrook to Denman) was delivered to Council in October 2017.

The flood studies required the development of flood models that could define the existing flood risk in Muswellbrook and Denman and evaluate potential mitigation options assessed as part of the Floodplain Risk Management Study.

1.1.2 *Desktop Assessment of Muswellbrook and Denman Levees*

Part of the FRMS scope was to undertake a desk top study of available information on the Muswellbrook and Denman Levee Systems. The key objectives of the reviews were to:

- Review a visual inspection report that was prepared by NSW Department of Public Works in 2016.
- Review levee design drawings and survey information that has been provided by Council.
- Apply the hydraulic model that has been developed as part of the FRMS to assess freeboard, likely overflow locations and identify portions of the levee that are exposed to elevated flow velocities.
- Make recommendations as required.

Reports detailing the assessment were delivered to Council in November 2016.

1.1.3 Floodplain Risk Management Study Objectives

The aim of a Floodplain Risk Management Study is to assess a range of flood mitigation strategies to alleviate flood risk in an LGA, in accordance with the NSW Government's Flood Prone Land Policy. The objectives of this study include:

- Reduce the flood hazard and risk to people and property in the existing community and to ensure future development is controlled in a manner consistent with the flood hazard and risk (taking into account the potential impacts of climate change).
- Reduce private and public losses due to flooding.
- Protect and where possible enhance the floodplain environment.
- Be consistent with the objectives of relevant State guidelines and policies, in particular, the Government's Flood Prone Land and State Rivers and Estuaries Policies and satisfy the objectives and requirements of the Environmental Planning Assessment Act, 1979.

1.1.4 Floodplain Risk Management Draft Plan Objectives

The Floodplain Risk Management Draft Plan presents a range of flood mitigation recommendations to address the existing flood liability of an LGA. The objectives of the plan are outlined below:

- Ensure that the draft floodplain risk management plan is fully integrated with Council's existing corporate, business and strategic plans, existing and proposed planning proposals, meets Council's obligations under the Local Government Act, 1993 and has the support of the local community.
- Ensure actions arising out of the draft plan are sustainable in social, environmental, ecological and economic terms.
- Ensure that the draft floodplain risk management plan is fully integrated with the local Emergency Management Plan (Flood Plan) and other relevant catchment management plans.
- Establish a program for implementation and suggest a mechanism for the funding of the plan, which should include priorities, staging, funding, responsibilities, constraints and monitoring.

1.2 The Study Area

Muswellbrook and Denman are located in Upper Hunter Region of New South Wales approximately 110 km north west of Newcastle. Muswellbrook is situated at the confluence of the Hunter River and Muscle Creek, while Denman is located on the western edge of the Hunter River Floodplain as presented in **Figure 1-1**. Muswellbrook has a population of 12,072, while 1789 people reside in Denman. The study area covers approximately a 60km reach of the Hunter River from 8km above Muswellbrook to 26km downstream of the confluence with the Goulburn River.

1.3 The Need for Floodplain Management in Muswellbrook and Denman

Flooding in the study area can occur from a range of flood mechanisms including:

- the Hunter River;
- Muscle Creek;
- The local Denman catchment.

Details of these flood mechanisms are provided in **Section 2.1**. The local Denman catchment provides a source of regular “nuisance type” flooding due to overland flow paths and partially blocked culverts. In terms of risk to life, Muscle Creek provides the greatest source of flood risk due to the hazardous flow conditions that can rapidly occur between Bell and Wilder Streets (refer **Section 7**). Muscle Creek flooding in as little as the 5% AEP (20yr ARI) event can inundate the only two roads connecting the northern and southern parts of Muswellbrook creating a potential issue for emergency services.

Effective floodplain risk management identifies which properties or areas in the study area are at highest risk and will determine and prioritise appropriate mitigation measures to reduce the risk. Flooding considerations are also an important constraint to the location and nature of future development in the study area. By determining the detailed flooding characteristics of the study area including the full extent of floodplain inundation for a range of design event magnitudes, the flood study outcomes provided further detail for future development planning in the catchment.

Council has commissioned this study with the desire to approach local floodplain management in a considered and systematic manner. This study comprises the final stages of that systematic approach, as outlined in the Floodplain Development Manual (NSW Government, 2005). The approach will allow for more informed planning decisions within the floodplains of Muswellbrook Shire Council.

1.4 The Floodplain Management Process

The NSW State Government’s Flood Policy provides a framework to support the sustainable use of floodplains. The Policy is specifically structured to support development of mitigation measures to existing flooding problems in rural and urban areas. In addition, the Policy provides a means of ensuring that any new development is compatible with the flood hazard and does not create additional flooding problems in other areas. Policy and practice are defined in the Government’s Floodplain Development Manual (2005).

Under the Policy, the management of flood liable land remains the responsibility of local government. The State Government subsidises flood mitigation works to alleviate existing problems and provides specialist technical advice to assist Councils with their floodplain management responsibilities.

The Policy provides for technical and financial support by the Government through the following sequential stages:

1. Establish Floodplain Risk Management Committee (or Working Group) - Conducts a vital oversight role for the floodplain risk management process, acting as a focus and forum for discussion of key issues in formulating the management plan.

2. Flood Study - Determines the nature and extent of the flood problem.

3. Floodplain Risk Management Study - Evaluates management options for the floodplain in respect of both existing and proposed development.

4. Floodplain Risk Management Plan - Involves formal adoption by Council of a plan of management for the floodplain.

5. Implementation of the Plan - Construction of flood mitigation works to protect existing development, and use of flood risk management measures (such as development controls) to ensure new development is compatible with the flood hazard.

The Muscle Creek Flood Study (RHDHV, 2017b), Denman Overland Flow Study (RHDHV, 2017c and Hunter River (Muswellbrook to Denman) Flood Study Revision (RHDHV, 2017a) define the existing flood behaviour and establishes the basis for future floodplain management activities.

The Muswellbrook Floodplain Risk Management Study and Plan (this document) constitutes the third and fourth stages of the management process. It has been prepared for Muswellbrook Shire Council to provide the basis for future management of flood liable land within the catchment.

1.5 About This Report

This report documents the Study's objectives, results and recommendations.

Section 1 introduces the study.

Section 2 provides background information including a catchment description, history of flooding and previous investigations.

Section 3 outlines the community consultation program undertaken.

Section 4 describes the flooding behaviour in the study area including a property inundation and damages assessment.

Section 5 presents a review of existing planning provisions.

Section 6 provides an assessment of relevant floodplain management measures.

Section 7 considers the requirement of a flood warning system for Muscle Creek.

Section 8 presents the recommended measures and an implementation plan.

1.6 Design Event Terminology (AEP & ARI Explanation)

Design flood events are hypothetical floods used for floodplain risk management. They are based on having a probability of occurrence specified either as:

- Annual Exceedance Probability (AEP) expressed as a percentage; or
- Average Recurrence Interval (ARI) expressed in years.

The relationship between AEP and ARI is presented in **Table 1-1** with further descriptions of typical design event terminology provided in **Figure 1-2**.

Table 1-1: Design Event Terminology (AEP & ARI Explanation)

Annual Exceedance Probability AEP (%)	Average Recurrence Interval (ARI, 1 in X years)	Comment
Probable Maximum Flood (PMF)		A hypothetical flood or combination of floods which represent an extreme scenario.
0.2%	500 yr	A hypothetical flood or combination of floods likely to occur on average once every 500 years or with a 0.2% probability of occurring in any given year
0.5%	200 yr	As for the 0.2% AEP flood but with a 0.5% probability or 200 year return period.
1%	100 yr	As for the 0.2% AEP flood but with a 1% probability or 100 year return period.
2%	50 yr	As for the 0.2% AEP flood but with a 2% probability or 50 year return period.
5%	20 yr	As for the 0.2% AEP flood but with a 5% probability or 20 year return period.
20%	5 yr	As for the 0.2% AEP flood but with a 20% probability or approximately a 5 year return period.

Although the probability of a flood of a given size occurring remains the same from year to year (unless the flood regime is altered or new data lead to a revision of statistical estimates), the chance of such a flood occurring at least once in any continuous period increases as the length of time increases. **Table 1-2** shows the probability of experiencing various-sized floods at least once or twice in a lifetime. Over an 80 year timeframe/lifetime there is a 7.7% change of experiencing a 1 in 1000 ARI (0.1% AEP) event. This puts the likelihood of such a severe and very rare event into some perspective. The probability of experiencing a second 1 in 1000 ARI (0.1% AEP) magnitude event in an 80 year period is only 0.3%.

Table 1-2: Probability of experiencing a given-sized flood one or more times in 80 years
Source: Managing the floodplain: a guide to best practice in flood risk management in Australia (AEMI (2013))

Annual exceedance probability [%]	Approximate Average recurrence interval (years)	Probability of experiencing a given-sized flood in an 80-year period	
		At least once [%]	At least twice [%]
20	5	100	100
10	10	99.9	99.8
5	20	98.4	91.4
2	50	80.1	47.7
1	100	55.3	19.1
0.5	200	33.0	6.11
0.2	500	14.8	1.14
0.1	1,000	7.69	0.30
0.01	10,000	0.80	0.003

Frequency Descriptor	EY	AEP (%)	AEP (1 in x)	ARI
Very Frequent	12			
	6	99.75	1.002	0.17
	4	98.17	1.02	0.25
	3	95.02	1.05	0.33
	2	86.47	1.16	0.5
	1	63.21	1.58	1
Frequent	0.69	50	2	1.44
	0.5	39.35	2.54	2
	0.22	20	5	4.48
	0.2	18.13	5.52	5
	0.11	10	10	9.49
Rare	0.05	5	20	20
	0.02	2	50	50
	0.01	1	100	100
	0.005	0.5	200	200
Very Rare	0.002	0.2	500	500
	0.001	0.1	1000	1000
	0.0005	0.05	2000	2000
	0.0002	0.02	5000	5000
Extreme				
			PMP/ PMPDF	

Figure 1-2: Australian Rainfall and Runoff (2016) Preferred Terminology

2 Background Information

2.1 Catchment Description and Flood Mechanisms

Muswellbrook is located in the Upper Hunter Valley 110 km north west of Newcastle and 230 km north-west of Sydney. The township is centrally located in the Hunter Valley with the Great Dividing Range to the west, Liverpool Range to the north and Mount Royal Range to the east. Muswellbrook is situated at the confluence of the Hunter River and Muscle Creek, while Denman is located on the western edge of the Hunter River Floodplain as presented in **Figure 1-1**

Details of the catchments and flood mechanisms that have been investigated as part of this FRMS are detailed in **Table 2-1** and described below.

It should be noted that the Possum Gully Catchment which is a partly urbanised 1.5 km² catchment in Muswellbrook was excluded from assessment in this FRMS because it was adequately assessed in the Possum Gully Catchment Stormwater Drainage Studies (SMEC, 2015a & b) (refer Section 2.4.4).

Table 2-1: Details of Study Area Catchments

Source	Catchment Size
Hunter River (above Muswellbrook)	3,370 km ²
Hunter River (above Denman))	4,510 km ²
Muscle Creek	92 km ²
Denman Local Catchment	10.5 km ²
Goulburn River	7,800 km ²

2.1.1 Hunter River Flood Mechanism

The Hunter River enters Muswellbrook Shire by passing through its northern border just south of the township of Aberdeen (refer **Figure 1-1**). From there, the river meanders some 20 kilometres to the south and through Muswellbrook. At Muswellbrook the river turns markedly to the southwest and flows a further 32 kilometres before reaching the township of Denman.

The river finds its confluence with the Goulburn River approximately 5 kilometres downstream of Denman. From there, the river changes direction once again and flows for some 31 kilometres to the southeast where it exits the Muswellbrook Shire as it flows beside the Golden Highway just south of Plashett Reservoir.

The catchment of the river upstream of Aberdeen covers an area of approximately 3,090 square kilometres. A number of tributaries flow into the river between Aberdeen and Denman. Most notable of these are Middle Brook and Dart Brook, which both have their headwaters around 40 kilometres north of Aberdeen. However, the two streams unite and flow around the outskirts of Aberdeen before entering the Hunter River just south of the township itself. The combined area of the sub-catchments that feed the river between Aberdeen and Denman totals 1,440 square kilometres. As such, the total area upstream of Denman is approximately 4,510 square kilometres.

Similarly, the catchment area upstream of Muswellbrook is approximately 3,370 square kilometres. The catchment area of the Goulburn River upstream of its confluence with the Hunter River is approximately 7,800 square kilometres. Several smaller sub-catchments flow into the

Hunter River between Denman and the eastern border of the LGA resulting in a total catchment area feeding the Hunter River upstream of this point totalling over 13,000 square kilometres. Details of the Hunter and Goulburn River sub-catchments are presented in **Figure 2-1**.

Flooding has long been an issue along the Hunter River, most famously in February 1955, when Muswellbrook and Denman both sustained considerable damages during an event that has long been considered one of the worst natural disasters in Australian history. Other serious flooding events occurred in 1971, 1976 and more recently in June 2007.

The property inundation assessment (refer Section 4.2) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), some 20 properties are flooded in the 5% AEP (20yr ARI), 175 properties are flooded in the 1% AEP (100yr ARI) and 659 properties could be flooded in the PMF.

Due to the large size of the catchment, longer 24-48 hour rainfall events are required to cause significant flooding in the study area from the Hunter River catchment.

2.1.2 Muscle Creek Flood Mechanism

Muscle Creek drains 92 km² of catchment upstream of Muswellbrook as presented in **Figure 2-2**. The upper and middle portions of the catchment comprise moderately steep forested terrain. The lower portion of the catchment is predominately forested but includes areas of mining and agricultural land uses as well as some urban areas. The critical duration of the catchment is 36 hours.

Muscle Creek flows centrally through the township of Muswellbrook before joining the Hunter River. There are three bridge crossings across the creek on Bell Street, Wilkinson Avenue and Bridge Street, though it should be noted that Wilkinson Avenue only provides access to the sporting facilities on the North side of the creek but does not provide a link to the northern part of Muswellbrook. It is important to note that flooding in as little as the 5% AEP (20yr ARI) event can inundate the only two roads connecting the northern and southern parts of Muswellbrook creating a potential issue for emergency services.

A substantial flood event occurred in Muscle Creek in June 2007. A review of available rainfall data was undertaken by Umwelt who estimated the event to be similar to a 2% AEP event (Umwelt, 2009). It is understood that substantial out of channel flooding occurred within the Muswellbrook Golf Course and that some flood waters spilt over Bell Street and flowed through residential areas located between Bell Street and Wilder Street before re-entering the channel (Umwelt, 2009).

The property inundation assessment (refer Section 4.2) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), some 17 properties are flooded in the 5% AEP (20yr ARI), 38 properties are flooded in the 1% AEP (100yr ARI) and 168 properties could be flooded in the PMF.

Due to the moderate size of the catchment, while longer (36 hour) rainfall events are required to cause critical flood levels, shorter duration events 2-12 hours may also produce flash flooding during intense rain events. The potential for rapid flows to develop through urban areas mean that unless flood mitigation measures (refer Section 6.4.4 & 6.4.5) are implemented in a reasonable timeframe, a flood warning system (refer Section 7) is recommended.

2.1.3 Denman Local Catchment Flood Mechanism

The township of Denman receives runoff from a local catchment area that extends from the Denman Levee to a ridge line that is located approximately 2km to the west of the township. The western portion of this catchment area comprises steep vegetated terrain with grades in excess of 30% in some areas. There is a subtle ridge line that commences in the northern portion of Denman and extends to the west, dividing the overall catchment into two catchments as presented in **Figure 2-3**.

The Northern Catchment has a total area of 3.3 km² and drains to the east through two discrete channels that do not enter the existing residential areas. The Southern Catchment has a total area of approximately 7.2 km² and drains through a number of discrete channels and overland flow paths towards the township of Denman. Drainage in the central portion of the catchment has been highly modified through the establishment of dams, drains and re-contouring of the land. The 2 hour duration event was identified as producing the highest peak flows and flood levels within the majority of the study area.

The property inundation assessment (refer Section 4.2) indicates that while no properties are impacted (by above floor flooding) in the 10% AEP (10yr ARI), 3 properties are flooded in the 2% AEP (50yr ARI), 7 properties are flooded in the 1% AEP (100yr ARI) and 412 properties could be flooded in the PMF, though most of these are due to the Hunter River overtopping the Levee and not the local catchment flood mechanism.

Due to the small size of the catchment, this flood mechanism typically only produces “nuisance” type flash flooding which may be exacerbated by blocked or undersized drainage infrastructure.

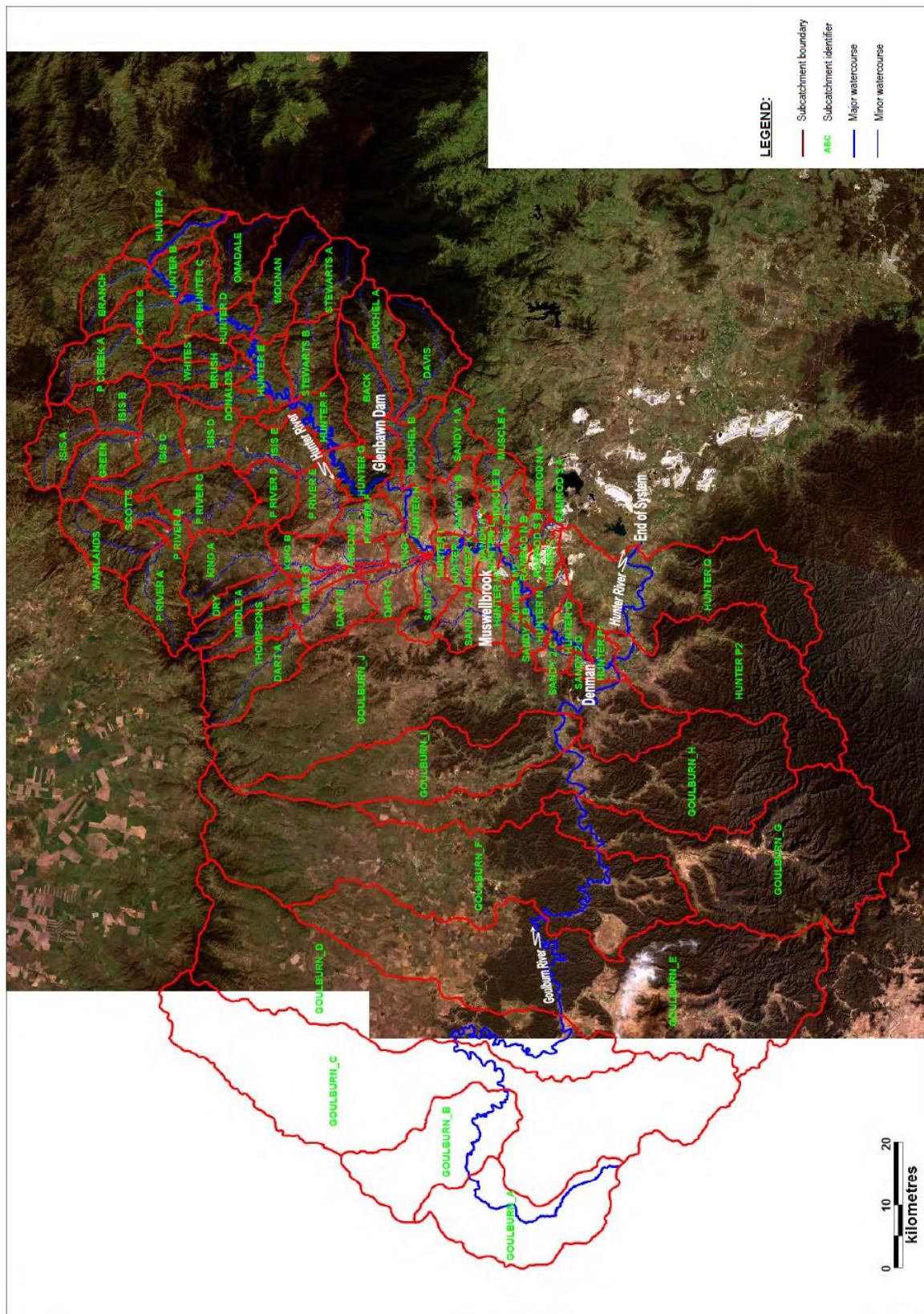


Figure 2-1: Hunter River Catchment and Hydrologic Model Sub-Catchemnts
Source: WorleyParsons (2014)

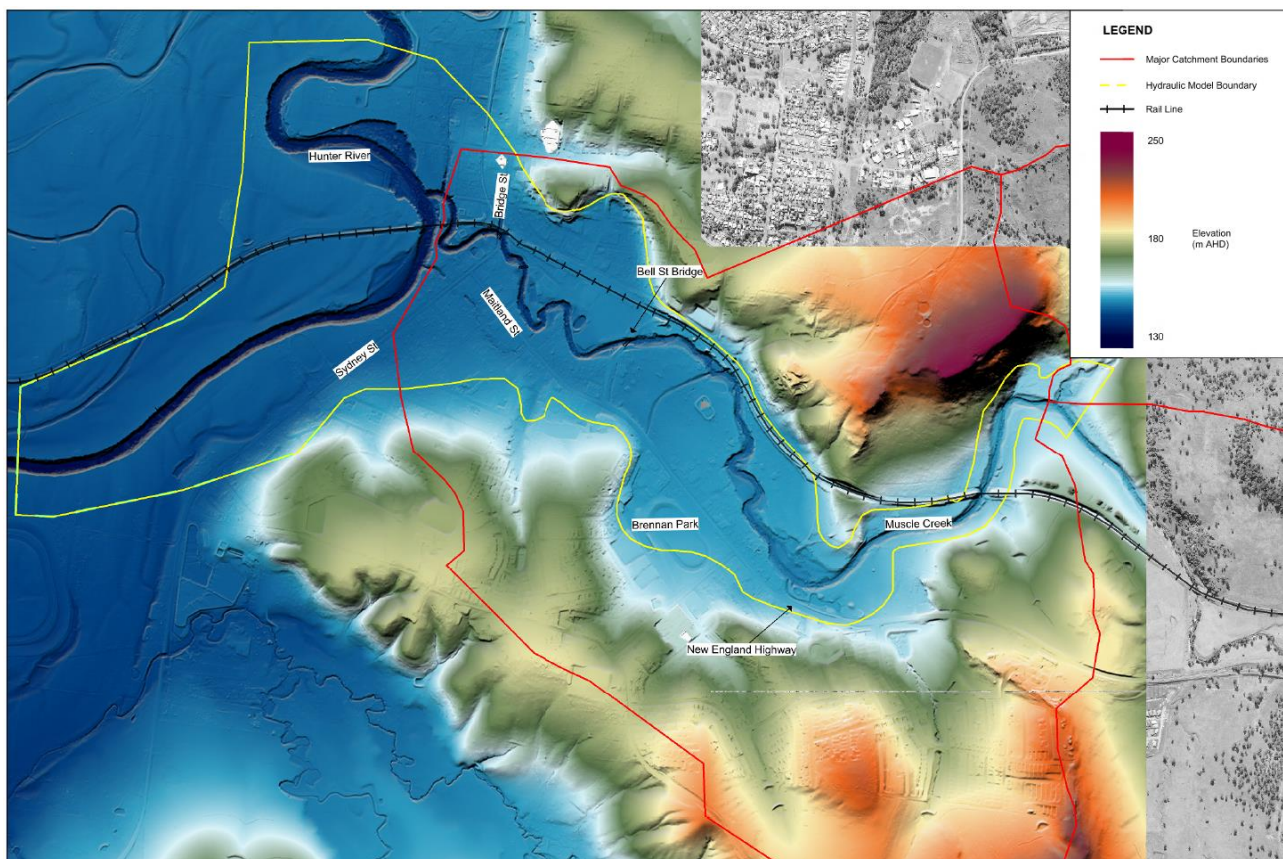
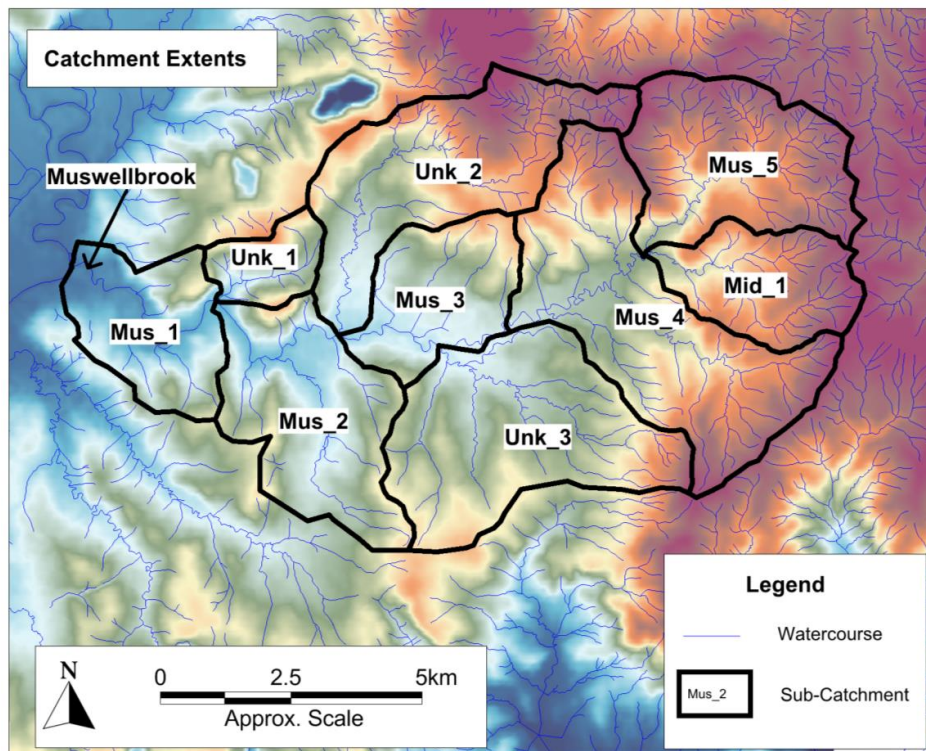


Figure 2-2: Muscle Creek Catchment and Model Extent

Source: Royal HaskoningDHV (2017b)

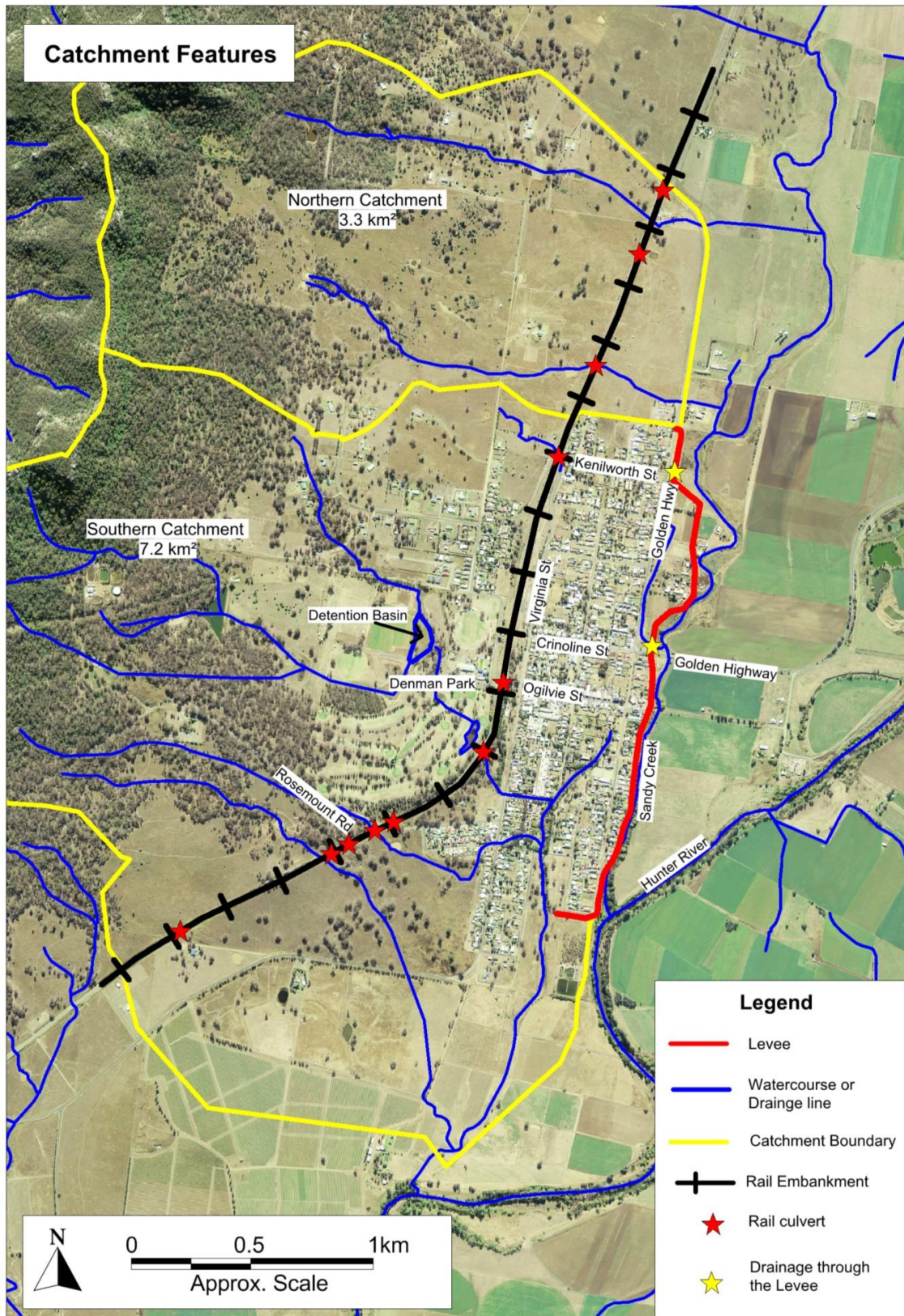


Figure 2-3: Denman Local Catchments
Source: Royal HaskoningDHV (2017c)

2.2 History of Flooding

European settlement commenced in the study area in approximately 1826. It is generally agreed that the largest flood to have been experienced in Muswellbrook and Denman since this time occurred in 1870 (estimated discharge 5900 m³/s). The largest flood to have been formally recorded occurred in February 1955. The 1955 flood occurred as a result of heavy rainfall across the catchment over several days and resulted in what is often regarded as one of the worst natural disasters in recent Australian history. The event had an estimated Average Recurrence Interval (ARI) of 100 years (Muswellbrook Flood Study, WRC 1986). Large areas within the urban centres of Muswellbrook and Denman were inundated during the event.

Glenbawn Dam, located in the upper catchment of the Hunter River some 20 kilometres northeast of Muswellbrook, was under construction during the 1955 flood event. However, the dam was not in operation until 1958. The dam has an upstream catchment of approximately 1290 square kilometres (31% of the Hunter catchment at Muswellbrook and 28% of it at Denman) and an approximate storage volume of 750 gigalitres of which 120 gigalitres is dedicated to flood storage. The dam has significantly reduced the flood risk characteristics along the Hunter River downstream. Despite the presence of the dam, further significant flood events occurred in Muswellbrook and Denman in February 1971, January 1976, August 1998, November 2000 and June 2007; although it should be noted that the inundation that occurred during the June 2007 flood event was primarily the result of flooding from Muscle Creek, which feeds into the Hunter River at Muswellbrook. **Table 2-2** provides a list of the major floods and the estimated peak heights and discharges at Muswellbrook (Kayuga Road Bridge) and peak flood levels at Denman. WRC (1986) also reports significant floods in 1864, 1867, 1870 and 1893. Cameron McNamara (1988) reports that the 1870 flood was the highest on record being approximately 0.1m higher than the 1955 flood.

Table 2-2: Summary of Historic Floods at Muswellbrook and Denman

Source: Worley Parson (2014)

Year	Peak Gauge Depth (m)	Peak Gauge WL Muswellbrook (mAHD) ³	Peak Gauge WL Denman (mAHD) ⁴	Discharge Muswellbrook (m ³ /s)	Approx. ARI ¹ (yr)
1955	11.55	147.8	110.3	5013	> 500yr
1971	10.91	147.2	109.9	3207	~50-100
1976	10.29	146.5	109.7	2104	~20-50
1992	10.32	146.5	109.6	2144	~20-50
1998	9.66	146.3	109.9	1502 ²	~20-50
2000	9.98	146.6	109.7	1598 ²	~20-50
2007	5.48	142.1	107.3	256	Rainfall for Muscle Creek ~50 year ARI

^{*1} Approx. ARI is based on Revised Flood Study Design Discharge Estimates.

^{*2} Flow using rating data provided in Revised Flood Study (RHDHV, 2017a).

^{*3} Muswellbrook Gauge zero is 136.244 m AHD

^{*4} Denman Gauge zero is 101.997 m AHD

Denman's highest recorded flood, in 1955, reached 8.29 metres on the local gauge. Other floods peaked above 8.0 metres in 1807, 1821 and 1870. The height at which water breaks out of the channel at Denman (7.25 metres) has been exceeded on 20 occasions since 1806.

2.3 Existing Flood Mitigation Structures

A number of existing flood mitigation measures that influence flooding in the study area are described in the below Section.

2.3.1 Glenbawn Dam

Glenbawn Dam, located in the upper catchment of the Hunter River, some 20 kilometres northeast of Muswellbrook, was under construction during the 1955 flood event. However, the dam was not in operation until 1958. The dam has an upstream catchment of approximately 1290 square kilometres (31% of the Hunter catchment at Muswellbrook and 28% of it at Denman) and an approximate storage volume of 750 gigalitres of which 120 gigalitres is dedicated to flood storage. The dam has significantly reduced the flood risk characteristics along the Hunter River downstream.

Glenbawn Dam is located on the Hunter River, approximately 35 km upstream of Muswellbrook. The dam's catchment accounts for approximately 31% of the Hunter River Catchment upstream of Muswellbrook. Construction of the dam commenced in late 1947 and was completed in late 1957. According to the Aberdeen Flood Study (WMAwater, 2013), the dam wall was only partially constructed during 1955 and the 1955 flood event passed through the dam relatively un-attenuated. Glenbawn Dam was constructed with a dam wall height of 78 m, a storage capacity of 300,000 ML and a flood mitigation capacity of 133,000 ML.

An upgrade of Glenbawn Dam was undertaken in 1986 / 1987. The upgrade comprised raising the dam wall height to 100 m and reconfiguring the outlet controls. The upgrades increased the dam's storage capacity to 750,000 ML. However, the flood mitigation capacity was reduced from 133,000 ML to 120,000ML. The Muswellbrook Flood Study (1986) references a study by Hayes (1982) which found that the flood storage capacities of 133,000 ML and 120,000 ML would "effectively have the same mitigating effect".

The adequacy of the flood mitigation function of this dam has not been reviewed as part of the FRMS&P. However, the Aberdeen Flood Study (WMAwater, 2013) concluded that no outflow from the dam's spillway is expected for the 0.2% AEP and lower magnitude flood events. The influence of the dam on flood flows is presented in **Figure 2-4**. The figure presents the flood frequency analysis for Muswellbrook before and after the dam was constructed. For a given AEP/ARI design event, the dam appears to reduce peak flows by ~500m³/s for the 20% AEP (i.e. 20yr ARI) and ~1500m³/s for the 1% AEP (i.e. 100yr ARI). In terms of reduced magnitude a previous 1% AEP (i.e. 100yr ARI) event without Glenbawn Dam would now have a ~3% AEP (i.e. ~30yr ARI).

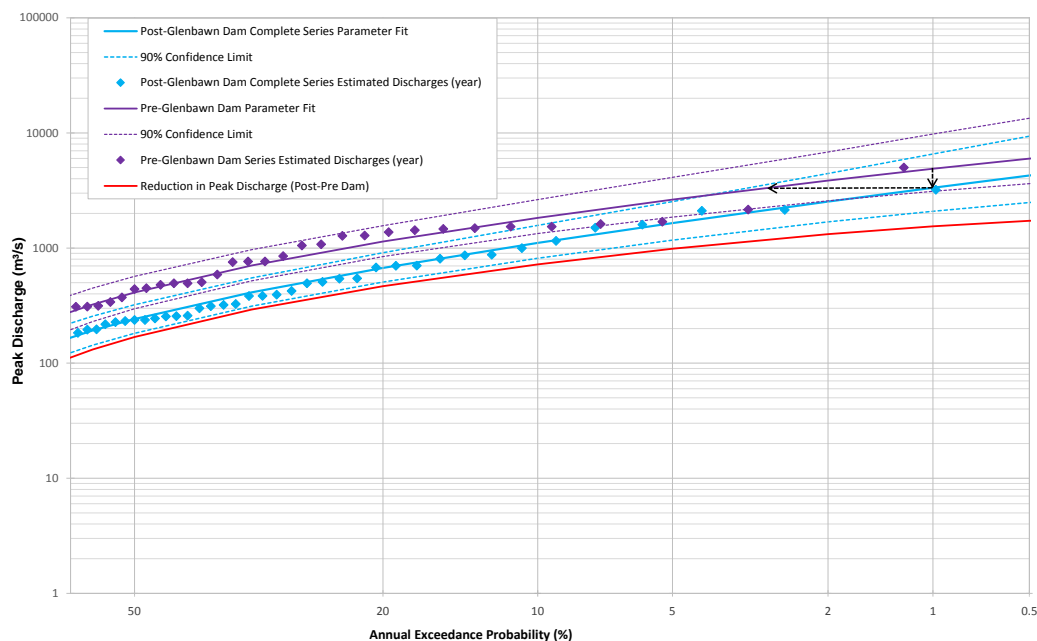


Figure 2-4: Pre and Post Glenbawn Dam Flood Frequency Analysis

Source: Royal HaskoningDHV (2017a)

2.3.2 Muswellbrook Levee

The Muswellbrook Levee is a relatively short levee system offering “flood relief” for residents situated on the north-western corner where the town is in close proximity to the Hunter River. The total levee length is approximately 1.16 km. The average height of the levee is approximately 3.5 m with the maximum height of approx. 4.8 m in the vicinity of Ford Street.

The Muswellbrook Levee was constructed in 1992 and was the result of a Flood Study, Social Economic and Ecological Effects Study and a Floodplain Management Study carried out in the late 1980s. Construction was undertaken by Council with the authority from the then Department of Water resources under the Hunter Valley Flood Mitigation Act (1956) which gave the then Department of Water Resources the power to construct the levee. The Act has since been replaced by the Water Management Act 2000. The levee was constructed following the detail design and confirmation of funding under the Federal Water Resources Assistance Program where funding was contributed by the Federal Government, State Government and Council.

The Muswellbrook Levee Management Plan reported that the levee was constructed with a 1.0 m freeboard over the 1 in 100 AEP design flood level over its entire length, i.e. design crest level at approx. RL 146.80 m AHD. The levee freeboard was assessed in RHDHV (2016b) (a desktop study commissioned as part of this FRMS) using the WorleyParsons (2014) flood study model. The assessment found that the 1% AEP freeboard ranged from 0.1 to 1.9m. However, it is important to note that the RHDHV (2017a) revised flood study produces 1% AEP flood levels that are between 0.3 and 0.7m lower than the 2014 flood study. This means that the 1% AEP freeboard is likely to be close to the original 1m, design freeboard.

The plan reported that the levee has not been designed to fully enclose the area west of the railway line. During major flooding from approx. the 1 in 7.14 ARI (14% AEP) flood event and greater, floodwater would back up from the end of the Scott / Brook Street, i.e. southern region of the levee, inundating properties progressively up to the northern regions on the dry side of the levee. This explains the notions of “flood relief” and “flood severity reduction” reported in association with this levee. Due to this, it would appear that while the Muswellbrook Levee technically only caters for the 1 in 7.14 ARI flood event, it offers significant flood reduction for larger events. The changes in 1% AEP flood levels due to the Muswellbrook levee were assessed in RHDHV (2016b). **Figure 2-5** shows that the levee reduced flood levels by between 0.7 and 1.3 m. The influence of backwater flooding is also apparent in the figure. Green areas show where flooding has been completely eliminated while the blue areas show the reduction in flood levels in locations impacted by backwater flooding. Extension of the levee to prevent backwater flooding is assessed in **Section 6.4.1** of this report.

A desktop study of available information regarding the Muswellbrook Levee was undertaken as part of the FRMS&P and is presented in a separate memo (RHDHV, 2016b) provided to Council in November 2016. The memo provides a number of recommendations to reduce the risk of the structure being compromised during a flood event.

2.3.3 Denman Levee

The Denman Levee is approximately 2.4km long commencing immediately to the east of the Golden Highway just north of Denman and traverses the Hunter River flood plains, crossing the Golden Highway just east of the Crinoline Street / Palace Street Intersection. The Levee then proceeds in a southerly direction east of the houses in Palace Street. It terminates at the Denman Sewerage Treatment Works. The average height of the Levee is approximately 2.5m with the maximum height being approximately 4.0m near the commercial centre of town.

The changes in 1% AEP flood levels due to the Denman levee were assessed in RHDHV (2016a). **Figure 2-6** shows that the levee reduced flood levels by between 2.1 and 1.3 m. The influence of backwater flooding is also apparent in the figure. Green areas show where flooding has been completely eliminated while the blue areas show the reduction in flood levels in locations impacted by backwater flooding.

The Levee is designed with a 1.0m freeboard over the 1% AEP flood level over its entire length except where it crosses the Golden Highway near the intersection of Palace Street / Crinoline Street. At this point (the breakout) the Levee is constructed at the 1% AEP Level with no freeboard for the width of the road.

The levee freeboard was assessed in RHDHV (2016a) (a desktop study commissioned as part of this FRMS) using the WorleyParsons (2014) flood study model. The assessment found that the 1% AEP freeboard ranged from 0.1 to 0.8m. However, it is important to note that the RHDHV (2017a) revised flood study produces 1% AEP flood levels that are between 0.3 and 0.7m lower than the 2014 flood study. This means that 1% AEP freeboard is likely to be close to the original 1m, 1% AEP design freeboard. The revised flood study also indicates that the Crinoline (Golden Highway) low point (ground level = 108.85 m AHD) would not be inundated in the 1% AEP (flood level = 108.80 m AHD).

The construction of the Levee Bank for Denman was proposed following extensive flooding in February 1971. At the Council's request, the Department of Water Resources designed a levee which would protect vulnerable areas of the town from damaging floods. The Levee was completed in August 1988 and commissioned on 27 October 1988. The Levee was installed to protect the town from overbank flooding from the Hunter River and close off the breakout into the

town from Sandy Creek. A Manual for the Operation and Maintenance of the Levee was provided by the Dept of Water Resources.

Cardno (2011) reports that a significant risk identified in the 2009 Management Plan related to the operation of the valves that shut off pipes that drain local internal stormwater. These valves are manually operated and are highly geared so that closing them off takes a considerable amount of time. When a flood of significance is forecast at Denman, the present system relies on a suitably trained operator to arrive at the floodgates in a timely manner and manually close off a valve at Crinoline St (1500Ø pipe) and 2 valves at Kenilworth St (750Ø pipes). The 375Ø drainage pipe at Macauley Street is fitted with a flap valve. A recommendation of (Cardno, 2011) was the installation of elastomeric in-line check valves to supplement the manual valves, however, it is believed that this action is yet to be implemented.

The Golden Highway also passes over the levee at Crinoline Street. The levee has been lowered at this point by approximately 1m to allow a reasonable vertical grading of the road as it passes over the levee. This provides a potential area for breaching of floodwaters and requires filling during floods to prevent the inundation of floodwater from the Hunter River. It is understood that Council acted on the recommendation of Cardno (2011) and purchased a temporary flood gate to be installed at Crinoline Street when a large flood is imminent.

A desktop study of available information regarding the Denman Levee was undertaken as part of the FRMS&P and is presented in a separate memo (RHDHV, 2016a) provided to Council in November 2016. The memo provides a number of recommendations to reduce the risk of the structure being compromised during a flood event.

2.3.4 Diversion Channels

WRC (1986) reports on the construction of two pilot channels in the late 1970's near Muswellbrook including:

- The Kayuga Bridge Diversion Channel which was constructed in 1978 to protect the approaches to Kayuga Bridge. It is understood this channel is generally referred to as Rosebrook Creek and runs parallel to Wybong Road for some distance before re-joining the Hunter River Channel near the Race Course.
- Koolbury Pilot Channel (near Lyndema Park) was constructed in 1976 to protect potential erosion undermining New England Highway. It is understood that this pilot channel is now the main channel of the Hunter River with a remnant Oxbow lake remaining where the old river channel was.

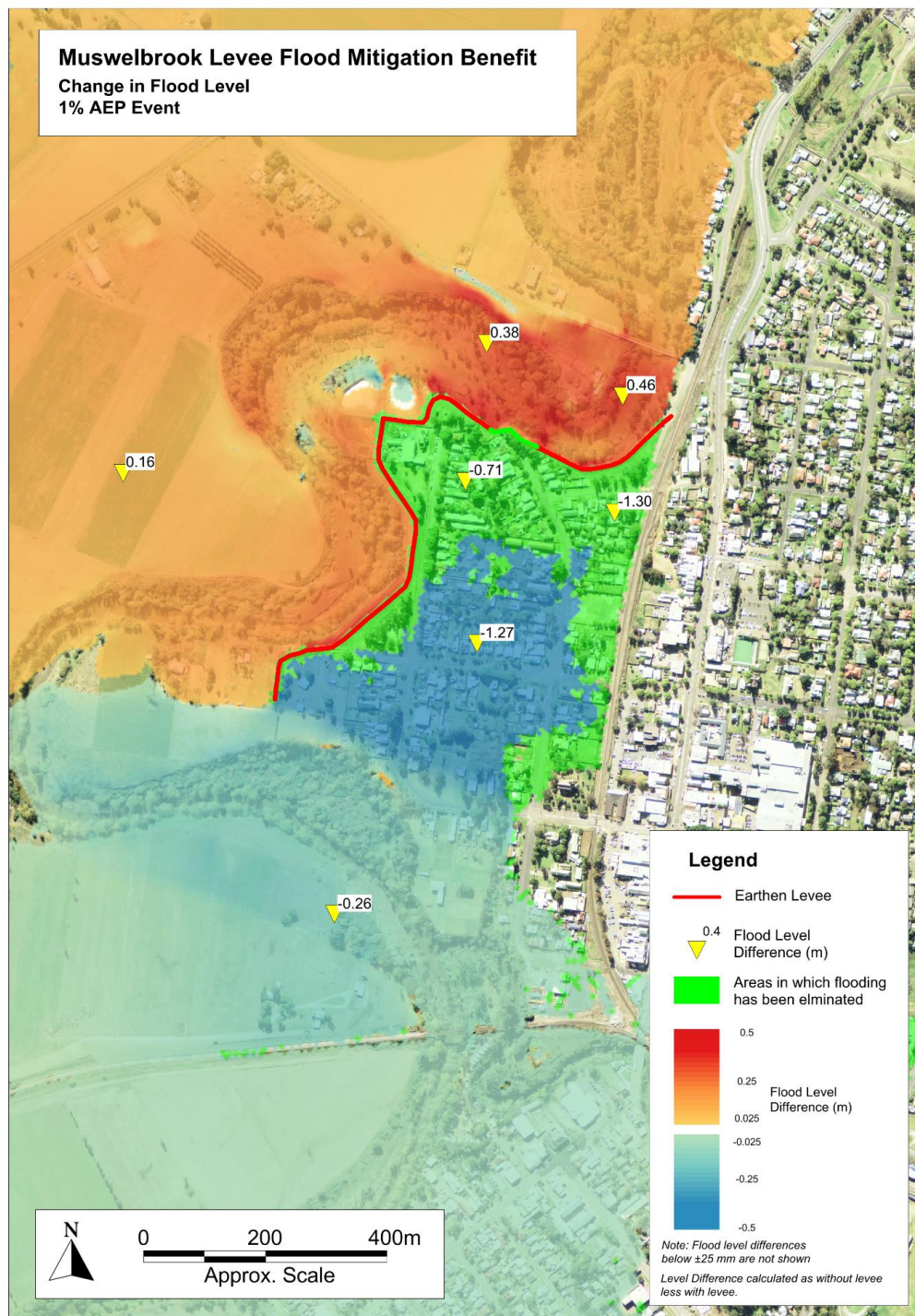


Figure 2-5: Muswelbrook Levee 1% AEP Flood Level Differences

Source: RHDHV (2016b) – Using WorleyParsons (2014) Flood Model

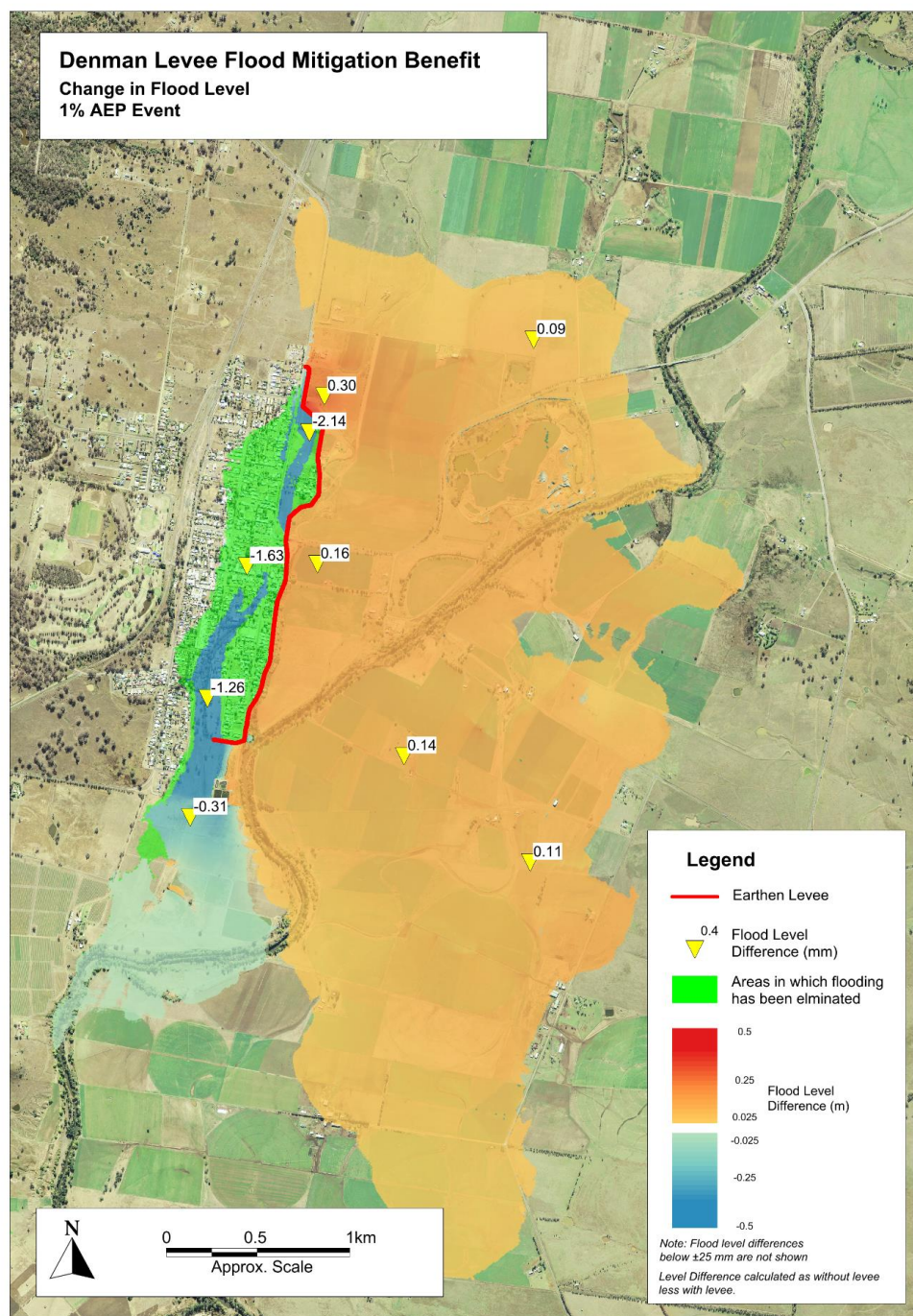


Figure 2-6: Denman Levee 1% AEP Flood Level Differences

Source: RHDHV (2016a) – Using WorleyParsons (2014) Flood Model

2.4 Previous Studies

A number of previous studies have been undertaken to investigate flooding in the study area. A summary of key studies is presented below.

2.4.1 *Hunter River Flood Study - Muswellbrook to Denman (Worley Parsons, 2014)*

The Hunter River Flood Study (Muswellbrook to Denman) was produced by Worley Parsons in 2014 as part of the NSW Government's Floodplain Management Program. The study is informed by an integrated hydrologic and hydraulic model of the Upper Hunter River Floodplain Catchment. The model encompasses the entire extent of the Hunter River Floodplain that is located within the Muswellbrook Council Local Government Area (LGA). The upstream portion of the model (from the upstream LGA boundary to the Goulburn River) was developed in TUFLOW as a two-dimensional (2D) hydraulic model, while the lower portion of the model (from the Goulburn River to the downstream LGA boundary) was developed in TUFLOW as a one-dimensional (1D) hydraulic model dynamically linked to the upstream 2D model.

Surface elevations within the hydraulic model are informed by Light Detection and Ranging (LiDAR) data that was acquired by State Water in 2010. The integrated hydrologic and hydraulic models were calibrated using available information from flood events that occurred in 1998, 2000 and 2007. The study did not attempt to use available information from the 1955 or 1971 events or the extensive Muswellbrook Stream Gauge record to verify the model results.

The hydrologic and hydraulic models developed as part of this study were provided to RHDHV for use in the FRMS. RHDHV have modified some aspects of the models. All modifications are noted in Section 4 of RHDHV (2017a).

2.4.2 *Muswellbrook and Denman Flood Studies (WRC, 1986)*

The Muswellbrook Flood Study and Denman Flood Study reports were prepared by the Water Resources Commission in 1986. Further details of the studies are provided in RHDHV (2017a). They provided an assessment of flooding that was used to inform the design of the Muswellbrook and Denman levees. The flood information is largely superseded by Worley Parson (2014) flood study and this study.

2.4.3 *Muswellbrook Shire Council - Floodplain Management Study (Cameron McNamara, 1988)*

This report identified a range of mitigation options aimed at reducing flood risk on residential properties in the Muswellbrook Shire. The key outcome was recommendation of the Muswellbrook Levee. The Denman Levee had already received approval so was not further investigated in the study. A diversion channel including upgrade of rail crossings was also investigated and found to reduce flooding for 29 houses.

The report also produced hazard maps that are still used in the current DCP.

2.4.4 *Possum Gully Catchment Stormwater Drainage Study (SMEC, 2015a & b)*

In 2015, SMEC was engaged by Council to undertake a stormwater drainage study for the Possum Gully Catchment which is a partly urbanised 1.5 km² catchment in Muswellbrook. The SMEC (2105a) study used an XP-RAFTS hydrologic model and a TUFLOW hydraulic model to investigate six (6) mitigation options including:

- **Mitigation Option 1:** Stormwater detention basin upstream of George Street;

- **Mitigation Option 2:** Culvert upgrades under Doyle Street roundabout, Carl Street, culverts immediately downstream of Carl Street crossing and Sowerby Street;
- **Mitigation Option 3:** Channel improvements between Queen Street and Sowerby Street;
- **Mitigation Option 4:** Augmentation of Queen Street Basin;
- **Mitigation Option 5:** Formalising channel/channel improvements between Carl Street and Sowerby Street; and
- **Mitigation Option 6:** Combination of Mitigation Option 1 and Mitigation Option 5.

Council then selected Mitigation Option 1, 5 and 6 to carry out a benefit-cost assessment as reported in SMEC (2015b). The final report also includes a concept design of the preferred Mitigation Option 5.

The modelling reported in SMEC (2015a) indicates a peak 1% AEP discharge from Possum Creek Gully of 13.3 m³/s for current catchment conditions and 19.5 m³/s for fully developed catchment conditions.

2.4.5 Lower Muscle Creek Flood Study (Umwelt, 2009)

In 2009, Council commissioned Umwelt to prepare a flood study of the Lower Muscle Creek Floodplain. The study is titled Flood Assessment of Bell Street, Muswellbrook (Umwelt, 2009). The study included:

- A review of a substantial flood that occurred in June 2007.
- The development of a hydrologic model of the Muscle Creek Catchment using the XP-Storm software package.

Development of a two-dimensional model of the lower Muscle Creek Floodplain using the RMA-2 software package. It is noted that the RMA-2 model was informed by photogrammetry survey data which is considered to be less reliable than the LiDAR data that was available to inform the updated study outlined in Section 2.5 (RHDHV, 2017b).

The hydrologic and hydraulic models were applied to assess the June 2007 and 1% AEP design events.

The study also assessed the following potential mitigation measures:

1. Widening of the Muscle Creek Channel.
2. Removing debris and vegetation from the creek channel and overbank areas.
3. Widening an overflow path between the golf course and the Muscle Creek Channel.
4. Restricting the entry of backflows into the Thompson Street drain.
5. Building a levee on the edge (adjacent to Bell Street) of the golf course

The study concluded that building a levee on the edge of the golf course would be the most practical and effective means of mitigating flooding downstream of Bell Street. The study recommended that a 0.8 m to 1.8 m high levee with a crest level of 147.8 m AHD would prevent the 1% AEP event from overtopping Bell Street. This option is further assessed in Sections 6.4.4 and 6.4.5 of this report.

2.5 Associated Studies and Study Outputs

A number of associated studies have been undertaken as part of the development of this FRMS&P. They include:

Muswellbrook and Denman Levee System: Desktop Study (16 November 2016)

Desktop Studies of Muswellbrook Levee and Denman Levee are reported in memo's RHDHV (2016a) and (2016b). The objectives of the desktop studies were to:

- Review a visual inspection report that was prepared by NSW Department of Public Works in 2016.
- Review levee design drawings and survey information that has been provided by Council.
- Apply the hydraulic model that has been developed as part of the FRMS to assess freeboard, likely overflow locations and identify portions of the levee that are exposed to elevated flow velocities.
- Make recommendations as required.

More information regarding the levees is presented in Sections 2.3.2 and 2.3.3.

The memos provide a number of recommendations to reduce the risk of the structure being compromised during a flood event.

Model and Data Review Note (21 March 2016)

Reviewed the TUFLOW model developed as part of the Muswellbrook Flood Study Model (WorleyParsons, 2014). The review found that the model was suitable for assessing mainstream flooding from the Hunter River, though a separate model of Muscle Creek should be developed to improve an understanding of the Muscle Creek flood mechanism. The review also recommended the development of a local catchment model for Denman to improve the understanding of the impact of this flood mechanism.

Flood Study Model Calibration Review and Results Verification (21 March 2016)

This memo presented a review of discrepancies between the outflows from the Aberdeen Flood Study Model (WMA, 2013) and the inflows applied to the Muswellbrook Flood Study Model (Worley Parsons, 2014). The review found some issues with the design hydrology adopted in Worley Parsons (2014) and recommended adopting the Aberdeen Flood Study Model (WMA, 2013) hydrology and that all design events would need to be re-run.

Summary of Flood Study Model Modifications (17 October 2016)

This memo discussed the influence of adopting the Aberdeen Flood Study Model (WMA, 2013) hydrology on design flood conditions in Muswellbrook. An outcome of the study (after consultation with Council, OEH and WaterNSW (who confirmed rating gauge updates)) was that a re-calibration of the hydrologic and hydraulic model should be considered.

Model recalibration and revisions (10 March 2017)

This presentation provided information on the model update and re-calibration findings. Of particular note was the influence of changes to the rating tables on hydrological calibration and also the influence of channel and floodplain vegetation changes on model roughness and predicted flood levels.

Model Revisions Report - 19 October 2017

The Flood Study Revision (RHDHV, 2017a) was required to produce an up-to-date flood study to provide appropriate information regarding flood risk to form the basis of the FMRS&P. The study included model re-calibration and validation of the models initially developed in the WorleyParsons (2014) flood study as well as updating the hydrology to use the latest ARR 2016

guidelines and techniques. The following scope for the model revision process was established by RHDHV in consultation with OEH and Council:

- Review and analyse recent changes to stream gauge rating curves.
- Modify the Hunter River hydraulic model to more reliably represent the current floodplain characteristics.
- Recalibration of the Hunter River hydrologic and hydraulic models using data from flood events that occurred in 1998 and 2000.
- Undertake flood frequency analysis using data from the Muswellbrook stream gauge.
- Apply the outcomes from the model calibration and verification process and the Australian Rainfall and Runoff 2016 methods to establish revised design event conditions for a full range of Annual Exceedance Probability (AEP) flood events.
- Verify the revised design model outcomes using available data from the 1955 and 1971 events.

The changes in estimates of design discharge and also changes in flood levels are discussed in Sections 4.1.2 and 4.1.3. The results from this flood study revision were combined with estimates of peak flood levels from the Muscle Creek and Denman local catchment to provide an overall assessment of flood risk for Muswellbrook and Denman (refer Section 4.1).

Muscle Creek Flood Study and Denman Overland Flow Flood Study - 30 January 2017

The Flood Studies for Muscle Creek (RHDHV, 2017b) and an Overland Flow study for Denman (RHDHV, 2017c) reports were delivered to Council in January 2017. The flood studies required the development of flood models that could define the existing flood risk in Muswellbrook (from the Muscle Creek mechanism (refer Section 2.1.2)) and Denman (from the Local Catchment (including drainage and overland flow flood mechanisms (refer Section 2.1.3)) and evaluate potential mitigation options assessed as part of the Floodplain Risk Management Study. The results from these two flood studies were combined with estimates of peak flood levels from the Hunter River flood mechanism to provide an overall assessment of flood risk for Muswellbrook and Denman (refer Section 4.1).

2.6 Floor Level Survey

Floor level survey was commissioned by Council and performed by MM HYNDES BAILEY & Co surveyors for all properties that may be flooded in the study area. Survey included some 900 urban properties (in Muswellbrook and Denman) and some 95 properties in rural areas. The survey was delivered in October 2016 and was used in the inundation and damages assessment (as presented in Section 4.2).

3 Community Consultation

Community consultation is a fundamental element of the floodplain risk management process as it facilitates community engagement and ultimately aids the endorsement of the overall project.

A range of consultation and communication methods have been utilised including:

- A media release on the Council Website at the start of the project (<https://muswellbrook.nsw.gov.au/index.php/2015-05-29-01-29-46/2398-your-comments-on-living-near-the-hunter-river-floodplain-are-invited>);
- An information brochure and questionnaire was delivered to all residents and businesses in the study area informing them of the study and requesting any information on previous flood events. The survey was available online at <https://www.surveymonkey.com/r/NJSQS3Z>
- Regular presentations of study progress at floodplain committee meetings;

3.1 Local Resident Survey Responses

As part of the FRMS, a Local Resident Survey was mailed to 888 properties that were identified as being potentially on flood prone land. A study brochure was also provided with the Local Resident Survey.

The key objectives of the community survey were to gauge the understanding of flood risk held by the community and to give local residents an opportunity to put forward key concerns and questions and provide information that could be used in the study.

88 responses were received and have been reviewed by RHDHV. The responses are summarised as follows:

- **Flood Insurance:** 75% of respondents advised that they have flood insurance. Cost and self- assessment of minimal flood risk were the key reasons provided by respondents who do not have flood insurance cover.
- **Awareness of Flood Risk:** 79% of respondents advised that they were aware that their property may be subject to flooding. Many respondents also indicated that they were aware of local flood levels from the 1955 and 1971 events.
- **Experience of Flooding:** Respondents experience of flooding has been divided into the following categories:
 - 12% have experienced flood waters entering their house or business.
 - 21% have experienced flood waters entering their property, but not their house or business.
 - 20% have experienced flooding of local roads, but not their property.
 - 47% have never experienced flooding.

Many responses included comments that they or a local neighbour had knowledge of local flood levels from the 1971 and 1955 events. This suggests that knowledge of flood risk is well held amongst the community despite the last major flood occurring in 1971, 45 years ago.

- **Knowledge of Local Flood Plan:** 85% of respondents advised that they have no or limited knowledge of the Local Flood Plan.
- **Key Concerns / Questions:** The following key concerns / questions were raised by respondents:
 - Flood warning, specifically:
 - a) How reliable is the flood warning system?
 - b) How much warning will be provided?
 - c) How will warnings be communicated to residents?
 - Evacuation process, specifically:
 - d) What areas need to be evacuated?
 - e) Will assistance be available to help elderly residents and others in need?
 - f) Concern about the availability of medications and medical assistance.
 - Risk to life and pets.
 - Potential for property damage, including furniture and personal items.
 - Flood clean-up costs and post flood recovery hardship.
 - Levee systems in Muswellbrook and Denman are untested.
 - Risk of sewerage discharging to floodwaters.
 - Potential for bank erosion along Muscle Creek to damage properties.
 - Muscle Creek rehabilitation is only localised.
 - Movement of stock, pumps and machinery from rural properties.
 - Looting during evacuation periods.
 - Unnecessary traffic (sightseers).

A number of photographs and videos of flooding in Muscle Creek (2007 event) were provided.

3.2 Public Exhibition of the Draft Muswellbrook and Denman FRMS&P

Public exhibition of the Draft Muswellbrook to Denman FRMS&P report was undertaken to gain the support of the local community. The report was made available digitally with links from Councils website. A hard copy was also displayed at the Council Offices for a period of four weeks for the public's comments. The public exhibition period was from 14/11/2018 to 12/11/2018.

Council did not receive any comment regarding Draft Muswellbrook to Denman FRMS&P report so no further community consultation was deemed necessary.

4 Existing Flood Behaviour, Property Inundation and Damages

4.1 Existing Flood Behaviour

Flood behaviour in the study area was quantified for three different flood mechanisms (refer Section 2.1) during the project as reported in:

- Hunter River Flood Study (Muswellbrook to Denman) Model Revision Report (RHDHV, 2017a)
- Muscle Creek Flood Study (RHDHV, 2017b)
- Denman (Local Catchment) Overland Flow Study (RHDHV, 2017c).

Flood extents from each individual flood mechanism were combined to produce a single design flood extent which represents the magnitude of flooding for a given frequency (i.e. annual exceedance probability (AEP) or average recurrence interval (ARI)). Peak flood depths and levels for Muswellbrook and Denman for the 1% AEP (100yr ARI) design flood event are presented in **Figure 4-1** and **Figure 4-2**. The figures include a line showing the location of which flood mechanism produces the highest peak flood level. A full series of flood maps for a range of design events is provided in the Appendix A (as described below).

A discussion of changes to design flood levels presented in the FRMS&P compared to the WorleyParsons (2014) Flood Study is provided in Section 4.1.2.

Design flood extents for three events including the: 20% AEP (5yr ARI), 1% AEP (100yr ARI) and Probable Maximum Flood (PMF) are presented in **Figure 4-5**, **Figure 4-6** and **Figure 4-7**.

The Map Compendium (Appendix A) presents maps of:

- Peak flood depths and contours of flood levels for the 5% AEP (20yr ARI), 1% AEP (100yr ARI), 0.2% AEP (500yr ARI), and probable maximum flood (PMF)
- Peak flood velocities for the 5% AEP (20yr ARI), 1% AEP (100yr ARI), 0.2% AEP (500yr ARI), and probable maximum flood (PMF)
- Peak flood hazard for the 1% AEP (100yr ARI).
- Hydraulic classification for the 1% AEP (100yr ARI) and PMF.

4.1.1 Hunter River Design Flood Levels

Peak flood levels for a range of design events are presented in **Table 4-1**.

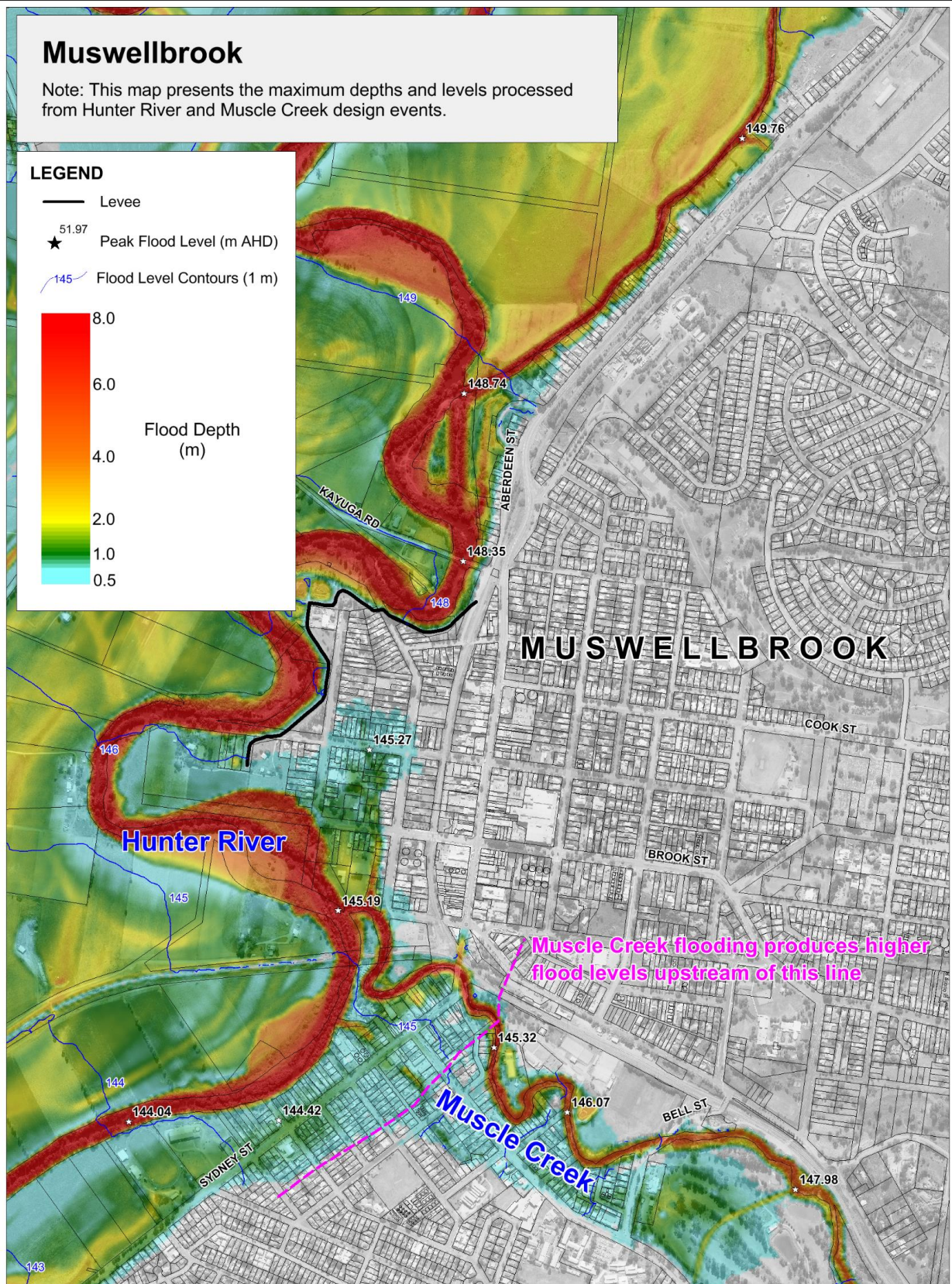
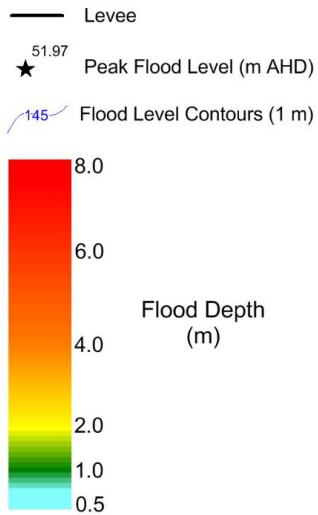
Table 4-1: Hunter River Design Flood Levels (ARR2016)

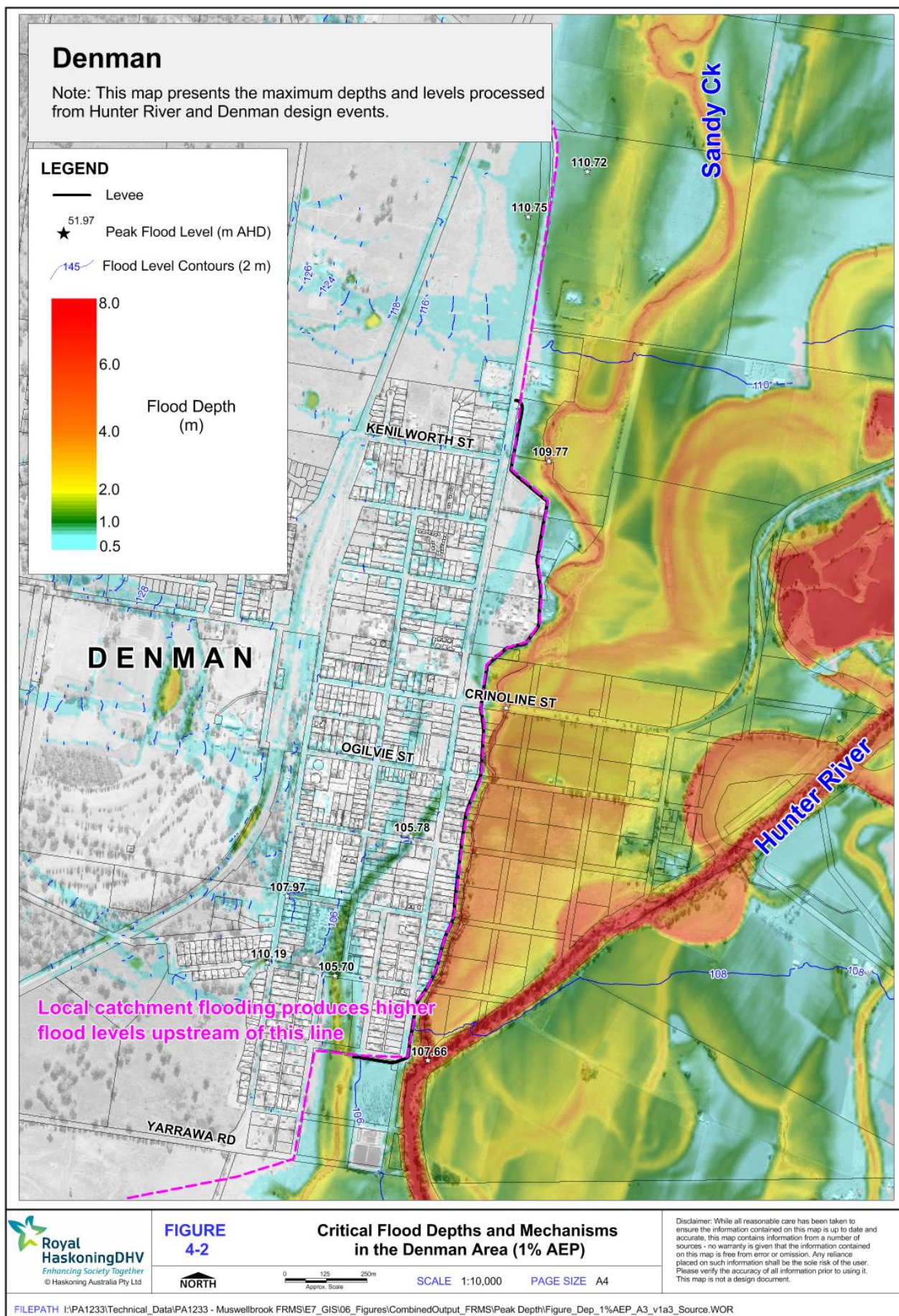
Location	Elev (mAHD)	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI	0.5% AEP 200yr ARI	0.5% AEP 500yr ARI	PMF Event
Kayuga Road Bridge, Muswellbrook	137.43	141.36	144.89	146.50	147.38	148.06	148.32	148.51	148.76	150.82
Muswellbrook Greyhound Track	132.31	137.38	141.51	143.22	143.73	143.95	144.04	144.12	144.25	146.88
Bengalla Link Road Bridge	129.77	133.40	136.56	137.74	138.32	138.88	139.11	139.29	139.52	142.84
Craigend	114.88	120.44	124.44	125.64	126.08	126.31	126.39	126.47	126.59	129.42
Kenilworth Street, Denman (Floodplain)	104.38	-99.00	106.37	107.80	108.63	109.46	109.77	110.01	110.30	112.51
Sandy Creek Confluence, Denman	99.17	102.86	105.88	106.71	107.04	107.49	107.64	107.76	107.92	110.81
Goulburn River Confluence	94.80	96.27	98.31	99.39	100.55	102.43	103.16	103.67	104.20	109.67
Golden Highway (Bowmans Crossing)	73.57	74.91	77.20	78.64	80.03	82.27	83.20	83.92	84.72	92.08

Muswellbrook

Note: This map presents the maximum depths and levels processed from Hunter River and Muscle Creek design events.

LEGEND





4.1.2 Changes in Hunter River Design Flood Levels

A comparison of the 1% AEP (100yr ARI) design levels to those produced in the previous Worley Parsons (2014) flood study are provided in **Table 4-2**.

Flood level difference maps have been prepared to show the changes in peak Flood Study (Worley Parsons, 2014) design flood levels due to the various model changes that are documented in RHDHV (2017a). **Figure 4-3** and **Figure 4-4** present flood level difference maps for the Muswellbrook and Denman area respectively.

With reference to **Figure 4-3** and **Figure 4-4**, the various model changes that are documented in RHDHV (2017a) resulted in 1% AEP flood level reductions ranging from 90 to 360 mm. Reductions in the flood affected areas of Muswellbrook are typically in the 90 to 340 mm range. Flood level reductions adjacent to the Muswellbrook Levee are in the 230 to 270 mm range, while moderately higher (140 to 350 mm) reductions are predicted adjacent to the Denman Levee. A grid calculation of the entire Hunter River between Muswellbrook and Denman (i.e. excluding the downstream area influence by the Goulburn River inflows) gave an average reduction in flood depths for the 1% AEP of 0.2 m.

The reduction in flood levels is due to the significant reduction in the assumed peak flows (see **Section 4.1.3**), partially offset by higher channel roughness assumptions (as discussed in RHDHV (2017a)). An even larger difference in water levels occurs downstream of the Goulburn River influence. The adoption of ARR2016 has resulted in design flow estimates nearly halving and as this section is modelled in 1D only, there has been no corresponding adjustment to roughness so estimates of flood levels in the 1D portion of the model should be used with caution.

Table 4-2: Comparison of 1% AEP Design Flood Levels

Location	Elev (mAHD)	1% AEP FS (2014)	1% AEP FRMS (2017)	Difference (m)
Kayuga Road Bridge, Muswellbrook	137.43	148.64	148.32	-0.32
Muswellbrook Greyhound Track	132.31	144.08	144.04	-0.04
Bengalla Link Road Bridge	129.77	139.34	139.11	-0.23
Craigend	114.88	126.45	126.39	-0.06
Kenilworth Street, Denman (Floodplain)	104.38	110.13	109.77	-0.36
Sandy Creek Confluence, Denman	99.17	107.84	107.64	-0.20
Goulburn River Confluence	94.80	104.46	103.16	-1.30*
Golden Highway (Bowmans Crossing)	73.57	85.36	83.20	-2.16*

Note* - Large changes in Goulburn River hydrology due to adoption of ARR2016 methodology.

4.1.3 Adopted Hunter River Hydrology

A comparison of adopted hydrologic inflows to the comprehensive flood frequency analysis (FFA) of flow gauge data at Muswellbrook (RHDHV, 2017a) are presented in **Table 4-3**. The data shows that the adopted hydrologic inflows are within 2 to 10% of those derived from a comprehensive flood frequency analysis (FFA) of flow gauge data at Muswellbrook for all events up to the 1% AEP. The close agreement between the FFA and the design hydrologic estimate using ARR2016 adopted in this study allow a good degree of certainty to be associated with the estimates of flood levels calculated in this study.

Hydrologic inflows presented in RHDHV (2017a) are also compared to the hydrologic inflows estimated in WorleyParsons (2014) is presented in **Table 4-3**. In general the adopted hydrologic flow used in this study are typically 30% lower than those calculated in Worley Parsons (2014). The adoption of ARR2016 procedures and in particular updated IFD data is responsible for the majority of the differences in design hydrology as discussed in RHDHV (2017a).

Table 4-3: Flood Frequency Analysis & Design Flow Comparison at the Muswellbrook Gauge

Event (AEP)	FFA Flow (m ³ /s)	Adopted Hydrologic Model Flows (m ³ /s)	Previous Flood Study ² Hydrologic Model Flows (m ³ /s)
0.2 EY	680	640*	1125*
10%	1137	1080	2430
5%	1714	1650	3107
2%	2682	2900	3973
1%	3583	3510	4857
0.5%	4643	4070	5800
0.2%	6308	4860	7199

*Note: 0.2 EY has a slightly different probability of occurrence to the 20% AEP, equivalent to 18.13% AEP

² Note: From Table 6.2 Worley Parsons (2014). Also flows are from upstream of Muswellbrook Gauge so are slightly lower than if a comparison at the actual gauge was available.

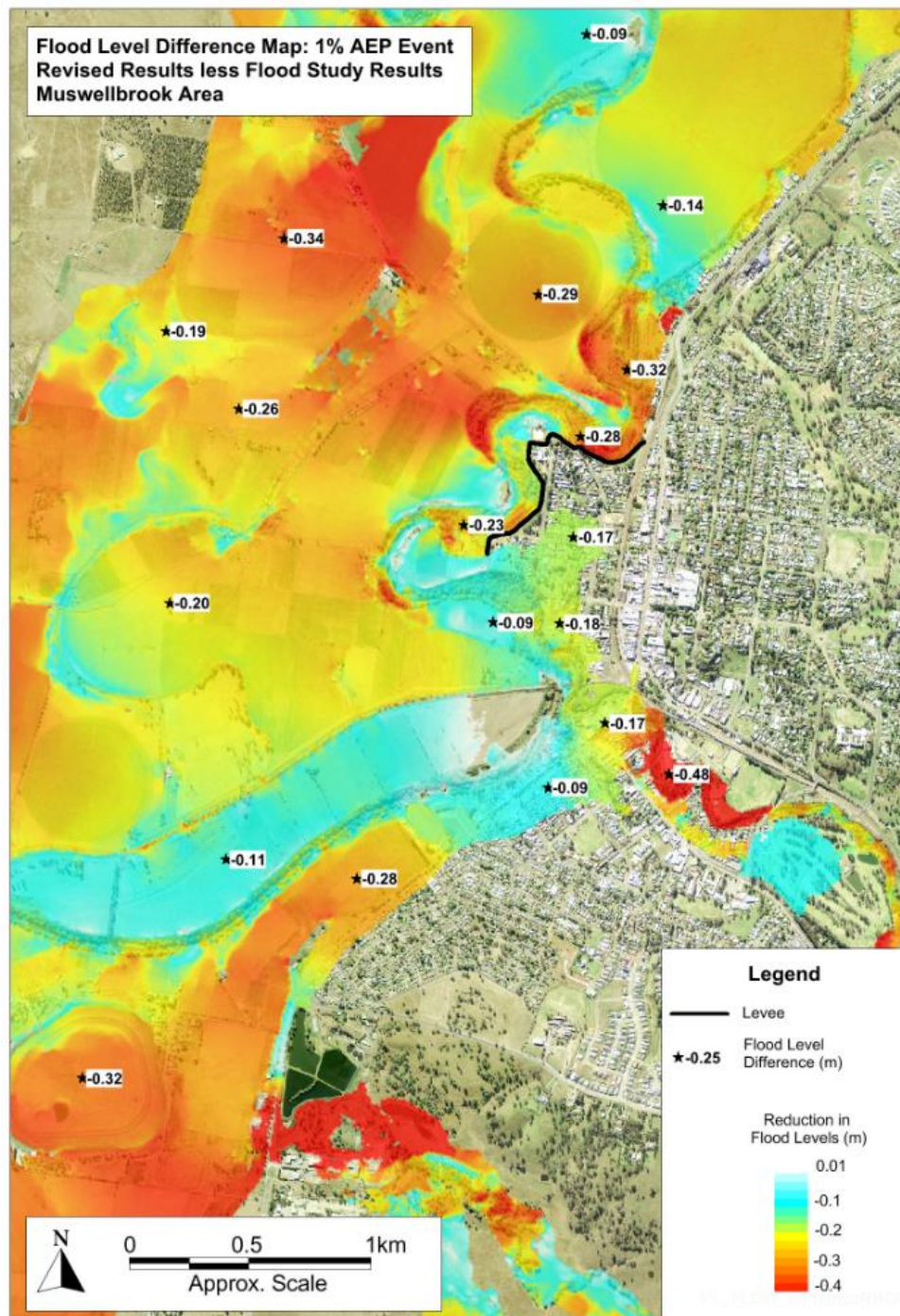


Figure 4-3: Changes to 1% AEP Levels: Muswellbrook Area

Note: a negative number represents a reduction in flood levels for the current study compared to the 2014 Flood Study.

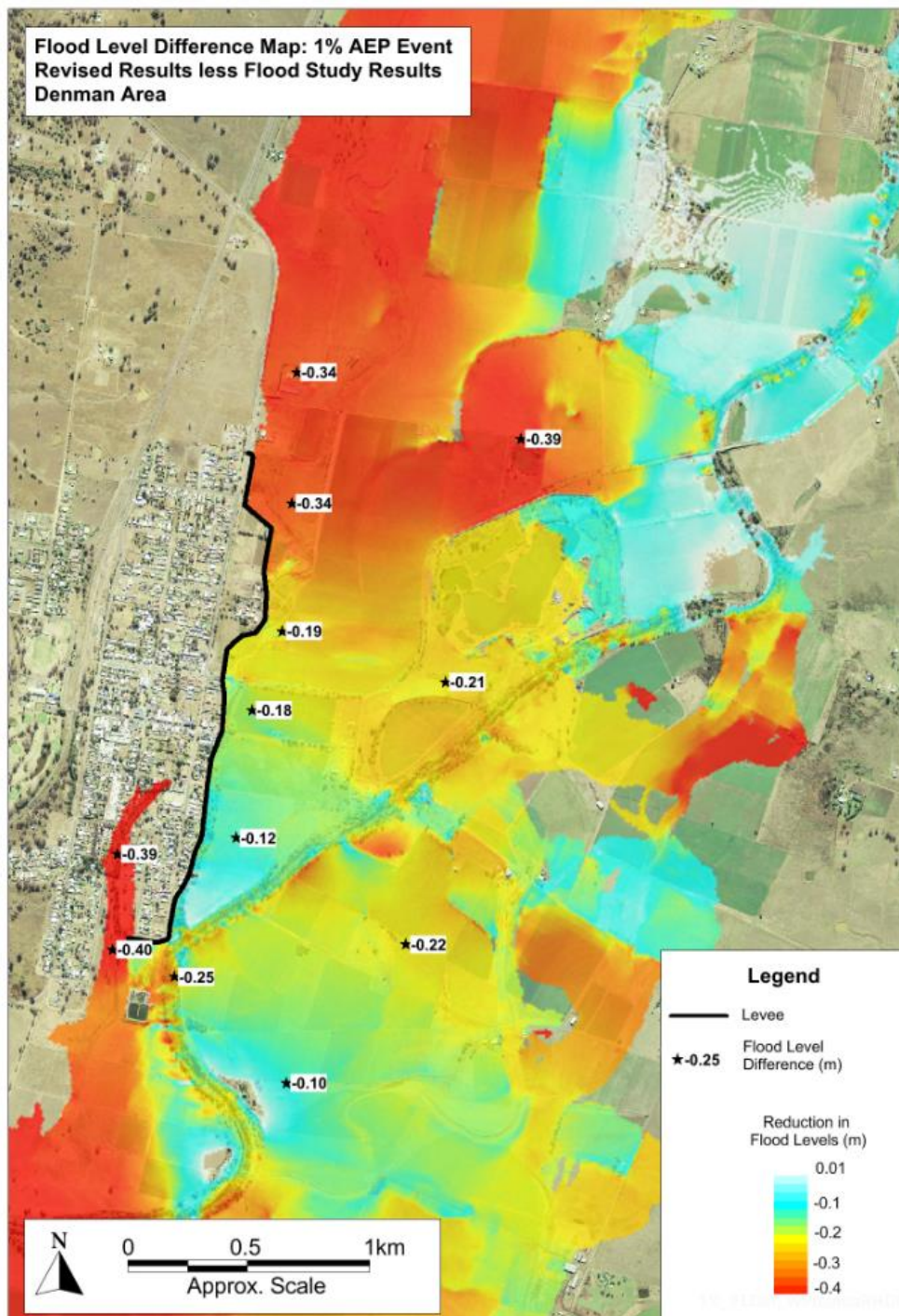


Figure 4-4: Changes to 1% AEP Levels: Denman Area

Note: a negative number represents a reduction in flood levels for the current study compared to the 2014 Flood Study.

4.2 Property Inundation and Flood Damages Assessment

A flood damage assessment has been undertaken to identify flood affected property, to quantify the extent of damages in economic terms for existing flood conditions (see below) and to enable the assessment of the relative merit of potential flood mitigation options by means of benefit-cost analysis (as detailed in **Section 6**). The general process for undertaking a flood damages assessment incorporates:

- Identifying properties subject to flooding
- Determining depth of inundation above floor level for a range of design event magnitudes
- Defining appropriate stage-damage relationships for various property types/uses
- Estimating potential flood damage for each property, and
- Calculating the total flood damage for a range of design flood events.

4.2.1 Property Database

A property database was established containing information regarding flood liable properties. The database contains the required information to carry out the flood damages assessment including:

Location Data: The locations of flood affected properties were determined by examining Council cadastre information and detailed aerial photography. Using GIS software, property data could be efficiently extracted into the property database. A total of 1255 properties were identified as occurring within the PMF extents. It should be noted that the database represents the catchment conditions circa September 2016 when the survey was undertaken. As such it excludes any properties that have been constructed or demolished since that time.

Land Use: For the purposes of the flood damage assessment, property was considered as either residential or non-residential (i.e. commercial or industrial). Commercial and industrial buildings (e.g. Libraries, Community Halls, Denman Multi-Purpose Service and other businesses etc.) properties have been identified from the property survey. Public infrastructure and utility assets (i.e. pumping stations, electricity sub-stations, etc.) were excluded from the damages assessment.

Ground and Floor Level Data: A floor level survey of property within the PMF flood extent was undertaken by Council surveyors. The survey provided building floor level, geographic coordinates, building classification (i.e. residential, commercial or industrial), approximate year constructed, number of stories, construction type (i.e. brick or weatherboard), foundation type (slab on ground or piers) and photographic record to identify property type. Ground level data was based on the LiDAR based DEM.

The distribution of surveyed properties within the study area with reference to the PMF flood extent is shown in **Figure 4-5**, **Figure 4-6** and **Figure 4-7**.

Flood Level Data: The design flood levels across the catchment were adopted from the Hunter River Flood Study (Muswellbrook to Denman) Model Revisions Report (Royal HaskoningDHV, 2017). The flood modelling results were used to generate a continuous flood profile across the floodplain. Flood levels calculated from the TUFLOW model were queried from TUFLOW's GIS output at each property reference point, creating a property specific flood level. The resultant flood level was used to calculate the depth of flooding above the property floor level or ground level for each design flood event. The depth of flooding was used to calculate a property specific flood damage estimate using the damage curves previously adopted by WorleyParsons (2014) for the Hunter River Flood Study (Muswellbrook to Denman).

4.2.2 Property Inundation Assessment

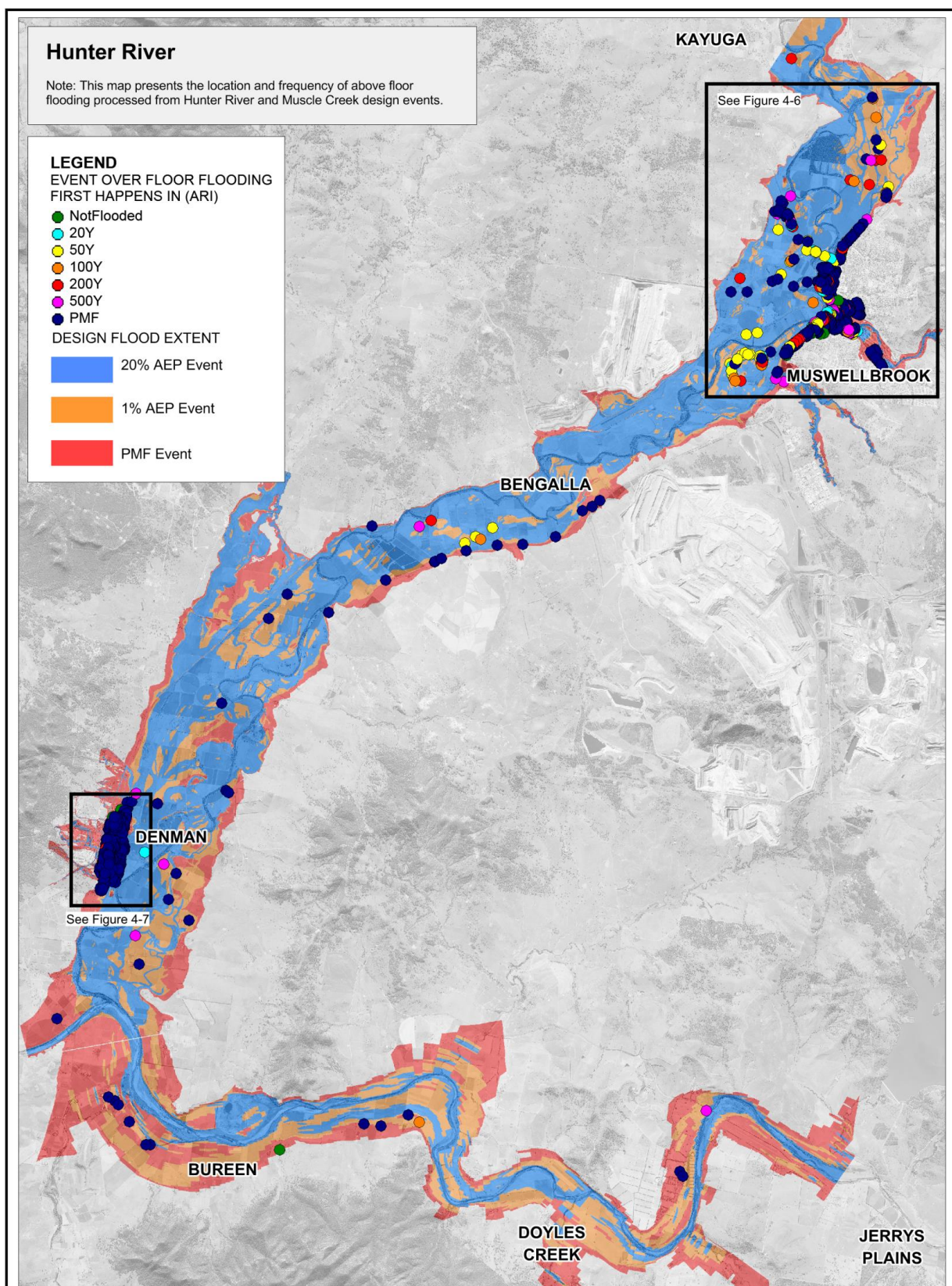
A summary of the location and frequency of above floor property inundation in the Muswellbrook to Denman study area is presented in **Figure 4-5** and **Table 4-4**. The assessment shows that:

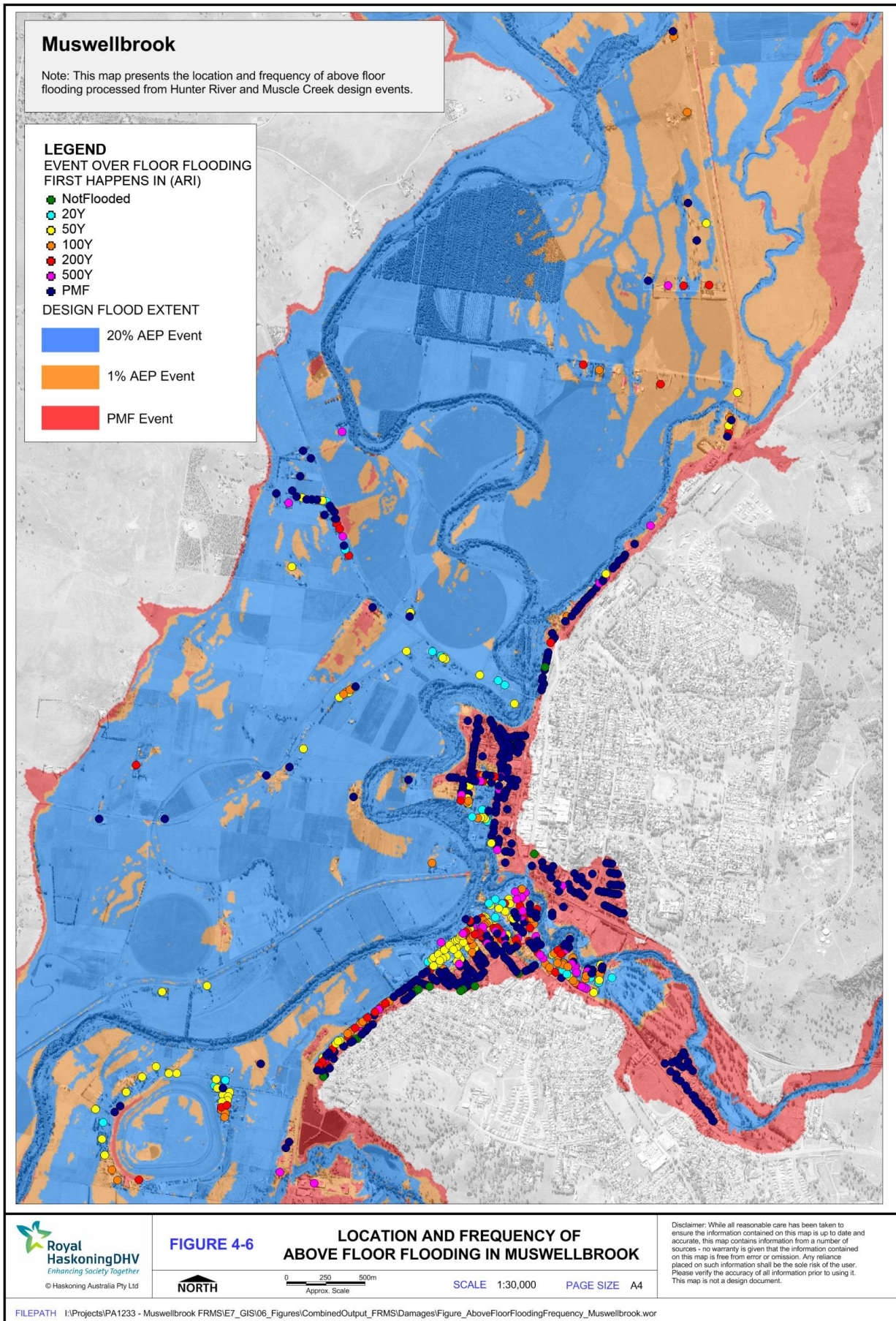
- In an extreme flood (i.e. the PMF), 1239 properties in the study area are inundated above floor level. Of these properties, 659 (53% of properties) are on the Hunter River floodplain, 412 (33% of properties) are in the township of Denman, and 168 affected by local flooding from the Muscle Creek catchment.
- Similarly, in the rare, 0.2% AEP (500-year ARI) event, 360 properties are inundated above floor level. Of these properties, 274 (77% of properties) are on the Hunter River floodplain, 15 (3% of properties) are in the township of Denman and 71 properties are affected by local flooding from the Muscle Creek catchment.
- During the 1% AEP (100-year ARI) event, 220 properties are inundated above floor level. Of these properties, 175 (80% of properties) are on the Hunter River floodplain, 38 (19% of properties) are affected by local flooding from the Muscle Creek catchment with only 7 properties affected in the township of Denman.
- During the 5% AEP (20-year ARI) event, 37 properties are inundated above floor level. Of these properties, 20 (58% of properties) are on the Hunter River floodplain with the remainder affected by local flooding from Muscle Creek. No properties are flooded above floor level in the township of Denman.
- During the 10% AEP (10-year ARI) event, no properties are inundated above floor level.
- During all design flood events, residential properties make up 80-90% of the above floor inundated properties with non-residential (commercial and industrial buildings) making up the remainder.

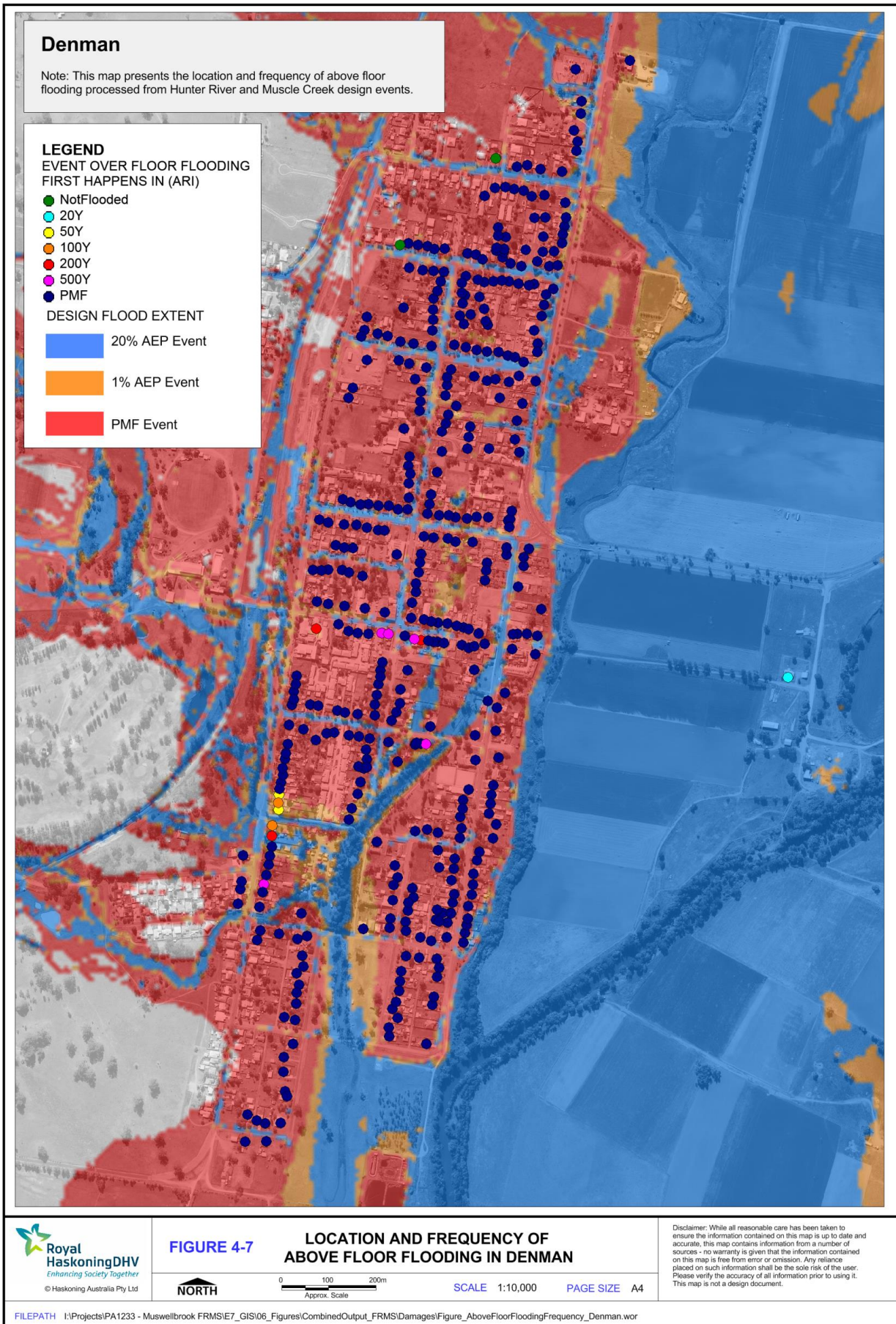
Table 4-4: Summary of Above Floor Property Inundation by Flood Mechanism and Property Type

AEP / ARI	Study Area (i.e. Total)	Hunter River	Muscle Creek	Denman	Residential	Non- Residential
PMF	1239	659	168	412	1113	126
0.2% / 500yr	360	274	71	15	315	45
0.5% / 200yr	283	225	49	9	251	32
1% / 100yr	220	175	38	7	192	28
2% / 50yr	150	123	24	3	133	17
5% / 20yr	37	20	17	0	30	7
10% / 10yr	0	0	0	0	0	0

For the range of design flood events above, a further 9 (for the 10% AEP event) to 1253 (for the PMF event) properties may experience below floor flooding. A summary of the number of properties that experience underfloor (or near house) flooding is presented in **Table 4-7**.







4.2.3 Flood Damages Assessment

Background

Flood damages are typically divided at the primary level, into tangible and intangible damages and at a secondary level, as direct and indirect damages. Tangible damages are those for which a monetary value can easily be assigned. Intangible damages are those to which a monetary value cannot easily be attributed and arise from social and environmental effects caused by flooding including factors such as: loss of life and injury, inconvenience, disruption of family and social activities, stress, anxiety and physical and psychological ill-health.

Tangible damages may be direct or indirect flood damages. Direct damages are directly attributed from the actions of flooding (inundation and flow), on property and structures, while indirect damages arise from the disruptions to physical and economic activities caused by flooding. Examples of indirect damages include: losses due to the disruption of business, expenses of alternative accommodation, disruption of public services, emergency relief aid and clean-up costs. This study estimates only the tangible, direct damages which are appropriate for the comparison of flood mitigation options.

Given the variability of property and content values, the total likely damages estimate for any given flood event is approximate only and while useful to gauge the magnitude of the flood problem, it is of little value for absolute economic evaluation. Given that the primary purpose of the flood damages estimates are to evaluate the economic effectiveness of proposed mitigation options, the methods used are considered appropriate.

The Average Annual Damage (AAD) is the main comparative factor derived from this flood damages assessment which is used to evaluate the effective of proposed mitigation options. The AAD represents the estimated tangible damages sustained every year on average over a given 'long' period of time and is determined using the full range of flood events considered in the FRMS. The AAD damage calculation considers that in many years there may be no flood damage, in some years there will be minor damage (caused by small, relatively frequent floods) and, in a few years, there will major flood damage (caused by large, rare flood events). Estimation of the AAD provides a basis for comparing the effectiveness of different floodplain management measure (i.e. the reduction in the AAD) as presented in **Section 6**.

Damages Methodology

The approach developed to calculate flood damages for the study area is based upon the development of a representative damage curve for typical structures in the floodplain after WorleyParsons (2014). Flood damages were calculated for the study area based on different types of land use along the floodplain, including:

- Residential
- Commercial, and
- Industrial.

Commercial properties include shops, pubs, offices and large shopping complexes, while industrial premises include metal fabrication works and distribution warehouses. The residential damages were assessed on the basis of the type of residential dwelling and categorised as either:

- Single storey set directly on the ground
- Single storey building set on piers (high set), or

- Double storey building set directly on the ground.

Stage-damage curves reflect the potential flood damage as a function of depth of over floor flooding of a building. The stage-damage curves adopted by WorleyParsons (2014) reproduced in **Figure 4-8** were used to maintain consistency between the previous 2014 flood study and the present 2017 revised flood study and FRMP.

Further details of the flood damage assessment methodology used are outlined under Section 8 of WorleyParsons (2014).

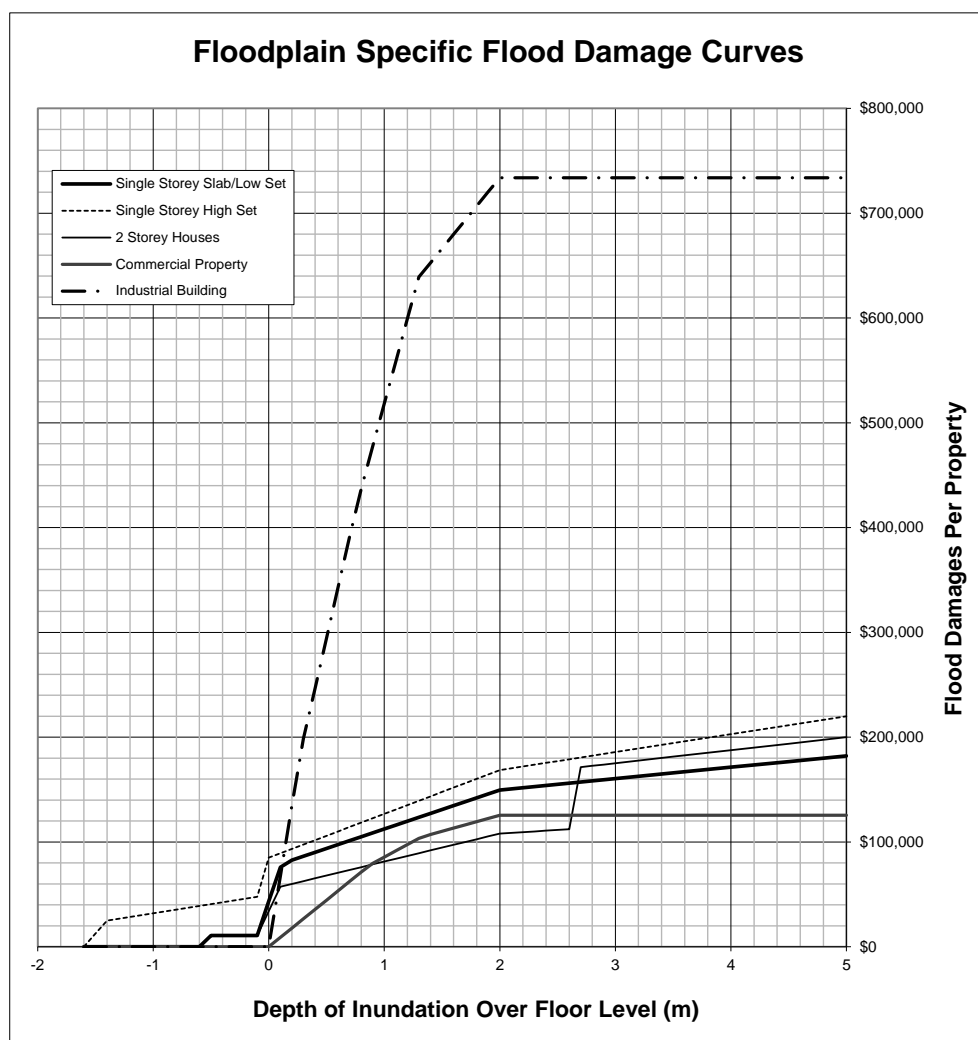


Figure 4-8: Adopted Stage Damage Curves for Hunter River (Source: WorleyParsons (2014))

Results of Damages Assessment

The results of the damages assessment is presented as follows:

- **Table 4-5** provides a summary of flood damages (\$) by flood mechanism and property type;
- **Table 4-6** contains the above data showing the percentage flood damages by flood mechanism and property type;
- **Table 4-7** summarises the flood damages in terms of each events contribution to the annual average damage (AAD) quantity (as previously described) and also defines how many properties are inundated in a given event; and
- **Table 4-8** provides a summary of net present value (NPV) calculations which uses the AAD value to calculate the total damages over a 50 year forward timeframe in term of today's costs for a range of discount factors.

A number of key points regarding flood damages for the existing conditions include:

- In the 1% AEP (100-year ARI) event, it is estimated that \$20.8 Million of tangible flood damages would occur in the study area. The majority (i.e. 79%, \$16.9 Million) of these damages are attributed to main stream flooding on the Hunter River floodplain. During a 1% AEP event, flood damages from Muscle Creek are estimated to be \$3.0 Million, and for the township of Denman approximately \$1.6 Million.
- In the 1% AEP (100-year ARI) event, residential properties make up 93% (i.e. \$20.0 Million) and non-residential (i.e. either commercial or industrial) properties estimated to incur an estimated \$1.5 Million worth of flood damages.
- With the exception of the PMF event, the majority (greater than 75%) of flood damages occur in the Hunter River floodplain area with the Muscle Creek area accounting for most of the remainder and the Denman area accounting for typically less than 10% of the damaged properties. During the PMF event, however, the number of properties with above floor flooding in the Denman area increases substantially accounting for 35% of the total.
- Residential properties account for between 89% and 96% of the flood damage costs for events greater than the 10% AEP. For the 10% AEP, flood damage costs are entirely related to residential properties.

A summary of flood damages (AAD Contribution) and property inundation is presented in **Table 4-7** which shows that the 2% AEP (i.e. 50-year ARI) and PMF events, contribute significantly (over 27% and 23% respectively) to the damages in the AAD value. Notable AAD contributions are also associated with the 100-year ARI and 200-year ARI events. Calculation of the average annual damages (AAD) costs for the study area suggests that over a sufficiently long period of time (in which the full range of design floods occurs), flood damages average out to approximately \$1.1 Million per year. Assuming no inflation and a 50 year timeframe, damages for the study area are estimated to be \$56.1 Million. As economic theory shows that today's \$56.1 Million dollars, will not buy \$56.1 Million dollars of goods in 50 years' time, it is important to carry out a net present values (NPV) calculation to understand the cost of covering future damages in terms of dollars now. Adopting a 7% discount rate (which is typical for this type of study and the likely future economic conditions) shows that over a 50 year time frame, the damages in today's dollars is reduced to \$16.6 Million. **Table 4-8** shows the impact on the NPV calculation of adopting a higher or lower discount rate. A 7% discount rate was adopted for the assessment of mitigation option presented in **Section 6**.

Table 4-5: Summary of Flood Damages by Flood Mechanism and Property Type

AEP / ARI	Study Area (i.e. Total)	Hunter River	Muscle Creek	Denman	Residential	Non- Residential
PMF	\$189,481,398	\$99,934,999	\$24,088,925	\$65,457,475	\$169,336,852	\$20,144,546
0.2% / 500yr	\$36,278,067	\$26,630,994	\$6,380,333	\$3,266,740	\$33,710,928	\$2,567,139
0.5% / 200yr	\$28,018,307	\$21,267,272	\$4,626,814	\$2,124,221	\$26,037,876	\$1,980,430
1% / 100yr	\$21,609,129	\$16,972,782	\$3,038,027	\$1,598,321	\$20,057,605	\$1,551,525
2% / 50yr	\$15,170,036	\$12,006,896	\$2,017,650	\$1,145,490	\$14,078,536	\$1,091,501
5% / 20yr	\$4,880,386	\$2,906,121	\$1,337,931	\$636,334	\$4,683,134	\$197,252
10% / 10yr	\$924,614	\$154,726	\$224,088	\$545,800	\$924,609	\$5
AAD	1,123,046	\$746,232	\$191,857	\$183,063	\$1,045,424	\$75,727

Table 4-6: Summary of Percentage Flood Damage by Flood Mechanism and Property Type

AEP / ARI	Study Area (i.e. Total)	Hunter River	Muscle Creek	Denman	Residential	Non- Residential
PMF	\$189,481,398	53%	13%	35%	89%	11%
0.2% / 500yr	\$36,278,067	73%	18%	9%	93%	7%
0.5% / 200yr	\$28,018,307	76%	17%	8%	93%	7%
1% / 100yr	\$21,609,129	79%	14%	7%	93%	7%
2% / 50yr	\$15,170,036	79%	13%	8%	93%	7%
5% / 20yr	\$4,880,386	60%	27%	13%	96%	4%
10% / 10yr	\$924,614	17%	24%	59%	100%	0%
AAD	\$1,123,046	67%	17%	16%	93%	7%

Table 4-7: Summary of Flood Damages (AAD Contribution) and Property Inundation

AEP / ARI	Total Damages	Contribution to AAD (\$)	Contribution to AAD (%)	Cumulative Contribution to AAD (%)	Properties Above Floor	Properties (Underfloor / Grounds)
PMF	\$189,481,398	\$226,525	23%	100%	1239	1253
0.2% / 500yr	\$36,278,067	\$96,445	9%	77%	360	713
0.5% / 200yr	\$28,018,307	\$124,069	12%	68%	283	611
1% / 100yr	\$21,609,129	\$183,896	18%	56%	220	534
2% / 50yr	\$15,170,036	\$300,756	27%	39%	150	448
5% / 20yr	\$4,880,386	\$145,125	11%	12%	37	269
10% / 10yr	\$924,614	\$46,231	1%	1%	0	59
AAD	-	\$1,123,046	100%		-	-

Table 4-8: Summary of NPV of Damages over 50 Years for a Range of Discount Factors

Discount Factor	NPV of Damages over 50 Years
0%	\$56,152,324.93
4%	\$25,248,539
7%	\$16,621,926
11%	\$11,277,243

4.3 Road & Rail Inundation Assessment

An assessment of potential road and rail inundation during flood events has been undertaken to assist in the formulation of effective evacuation strategies. An assessment of the frequency of closure for significant transport routes is outlined below. The specific locations of closures have been provided to Council & OEH in GIS format and was also used to inform **Section 4.6** (Access and Evacuation Constraints (ERP Classification)) of this report.

The large size of the Hunter River catchment means that longer duration road closures are likely, typically ranging from 4 to 24 hours depending on the duration and magnitude of the events. However, it may also be possible for longer duration road closure events of up to 48 hours could occur. Due to the size of the catchment, Muscle Creek Road closures are likely to be for a short-moderate duration say 1-6 hours depending on the duration and magnitude of the events. Road closures from the local Denman catchment flood mechanism are only likely to be for 1 to 2 hours.

Bridge Road / Subway (Muscle Creek) – Elevation of the bridge deck and approach road (subway under rail bridge) is 141.5 m AHD. The road is submerged by approximately 1 m from a tailwater from the Hunter River in as little as the 50% AEP (i.e. 2yr ARI). Once Bridge Street is submerged the only other main cross-town access road is the Bell Street crossing which is described below.

Bell Street (Muscle Creek) – Elevation of the bridge deck is 148.0 m AHD though the elevation of the approach road is 147.2 m AHD. Road receives minor inundation in the 10% AEP (10yr ARI), and is likely to be inaccessible to 2wd cars in the 5% AEP (20yr ARI). Once Bell Street is cut, cross-town access in Muswellbrook is lost, which may cause emergency service access issues as the hospital is located on the north side of Muscle Creek.

Note: a long distance diversion eastward along Muscle Creek Road, then north towards Muswellbrook Coal Mine then west along Coal Road back to Muswellbrook may be an alternate route though this route does require a crossing of Muscle Creek outside the study area. Alternatively emergency services from Singleton may be required.

Wilkinson Avenue (Muscle Creek) – Elevation of the bridge deck is 147.0 m AHD and the bridge appears to be flood free up to the 0.2% AEP (i.e. 500yr ARI), though the approach is lower and is cut in the 2% AEP (i.e. 50yr ARI) flood event.

Maitland Street / New England Highway (adjacent to Muscle Creek) – The New England Hwy (heading east out of Muswellbrook) could become inundated in events greater than the 5% AEP (i.e. 20yr ARI). However, alternative routes around these flooded low points are available.

Clifford, Gyarran and Wilder Streets (Muscle Creek) – These minor local urban roads are inundated in the 5% AEP (20yr ARI). Flash flooding from Muscle Creek could cause rapid and unpredictable flooding which could result in evacuation difficulties and unsafe conditions.

Lorne Street (Muscle Creek) – is predicted to have < 0.15m inundation in the 2% AEP (50yr ARI) event, though would be closed in the 1% AEP (100yr ARI).

Railway Bridge Crossing of Muscle Creek – The first rail crossing of Muscle Creek (heading east out of Muswellbrook) appears to be flood free in all events apart from the PMF. It is likely that two subsequent rail crossing have a similar level of flood immunity though these are outside the study area and have not been assessed.

Sydney Street (Hunter River eastern bank) – Sydney Street is flood free in the 10% AEP (i.e. 10yr ARI) but is inundated in the 5% AEP (20yr ARI) and above. While alternate traffic routes are available, the evacuation of residents on the river side of the street would be required.

Bengalla / Ulan Railway (Hunter River Floodplain crossing) – Begins to be inundated in the 10% AEP (i.e. 10yr ARI).

New England Highway, north of Muswellbrook (Hunter River eastern bank) - flood free in the 5% AEP (i.e. 20yr ARI) but is inundated in the 2% AEP (50yr ARI) and above. This is the only road between Muswellbrook and Aberdeen.

Main Northern line, north of Muswellbrook (Hunter River eastern bank) – flood free in the 5% AEP (i.e. 20yr ARI) but is inundated in the 2% AEP (50yr ARI) and above.

Koolbury Flat Row & Burtons Lane (Hunter River Floodplain crossing) – Are cut by Hunter River flood runners in events above the 5% AEP (20yr ARI). Burtons Lane can also be cut by large Sandy Creek catchment events, due to low channel capacity in Sandy Creek downstream of the New England Highway Bridge.

Kayuga Road (Hunter River Floodplain crossing) – Hunter River flood flows are generally maintained in channel up to and including the 20% AEP (i.e. 5yr ARI), however, there is a low causeway crossing of Rosebrook Creek which is flooded up to 0.5 m deep in the 20% AEP and would isolate 29 properties. In the 10% AEP (i.e. 10yr ARI) most roads in the area are likely to be impassable to cars, though trucks, 4WDs and tractors may be able to pass these roads up to the 5% AEP (i.e. 20yr ARI) event.

Wybong Road (Hunter River Floodplain crossing) – Hunter River flood flows are generally maintained in channel up to and including the 20% AEP (i.e. 5yr ARI), however, there is a low causeway crossing of Rosebrook Creek which is flooded up to 0.5 m deep in the 20% AEP and would isolate 4 properties. In the 10% AEP (i.e. 10yr ARI) most roads in the area are likely to be impassable to cars, though trucks, 4WDs and tractors may be able to pass these roads up to the 5% AEP (i.e. 20yr ARI) event.

Bengalla Road (Hunter River Floodplain crossing) – Hunter River flood flows are generally maintained in channel up to and including the 20% AEP (i.e. 5yr ARI). In the 10% AEP (i.e. 10yr ARI) most roads in the area are likely to be impassable to cars, though trucks, 4WDs and tractors may be able to pass these roads up to the 5% AEP (i.e. 20yr ARI) event.

Racecourse Road (Hunter River Floodplain crossing) – is flood free in the 10% AEP (i.e. 10yr ARI) but is inundated in the 5% AEP (20yr ARI) and above. Evacuation of the race course area should be a priority.

Brook and Lower Hill Street (Hunter River Tailwater) – These minor local urban roads are inundated in the 5% AEP (20yr ARI) by a tailwater from the Hunter River flooding Possum Gully Creek. Some 4WD access may be possible in the 5% AEP (20yr ARI). No vehicular access is likely above the 2% AEP (50yr ARI), though pedestrian access is likely to be possible behind the levee.

Denman Road (Hunter River eastern bank) - is flood free in the 5% AEP (i.e. 20yr ARI) but is inundated in the 2% AEP (50yr ARI) and above.

Golden Highway - Hunter River Floodplain crossing at Denman – is flood free in the 20% AEP (i.e. 5yr ARI) but is inundated in the 10% AEP (10yr ARI) and above. Once the highway is cut, road access to Denman from any large townships is lost.

Golden Highway - Bowmans Crossing (Hunter River Floodplain crossing) – the elevation of the low point on the bridge deck / approach road is 79.0 m AHD. The bridge/road is flood free in the 10% AEP (i.e. 10yr ARI) but is inundated in the 5% AEP (20yr ARI) and above. This crossing could also be closed due to large flows on the Goulburn River system.

Denman Local Catchment Road Closures – A number of road closures in the Denman Township catchment are possible. However, closures are likely to be limited to 1-2 hours and flow depths would generally be less than 0.5m (mostly 0.1-0.2m) though high velocity flood flows would make road crossing hazardous to all but large tractors, trucks and 4WDs. The two culvert crossing of Virginia Street could become potentially hazardous floodways during more extreme events. The Babbington Street causeway can also be impacted by a backwater from the Hunter River though alternative higher routes are available. .

4.4 True Flood Hazard Classification

The Muswellbrook Flood Study (WorleyParsons, 2014) defined the provisional hydraulic hazard based on an extension of the methodology outlined in Appendix L of the NSW Floodplain Development Manual (NSW State Government, 2005). This approach used a depth-velocity relationship to define areas as low, medium, high, very high and extreme hazard.

The current FRMS&P proposes to use the flood hazard curves proposed by Smith et al. (2014) and recommended by the Australian Emergency Management Institute (AEMI). This approach provides a range of hazard classifications which increase in severity based on the safety threat posed to vehicles, people and buildings. These classifications and the corresponding flood hazard curves are shown in **Table 4-9** and **Figure 4-9** respectively.

Table 4-9: Hazard Classifications

Hazard Classification	Description
H1	No vulnerability constraints
H2	Unsafe for small vehicles
H3	Unsafe for all vehicles, children and the elderly
H4	Unsafe for all people and all vehicles
H5	Unsafe for all people and all vehicles. Buildings require special engineering design and construction
H6	Unconditionally dangerous. Not suitable for any type of development or evacuation access. All building types considered vulnerable to failure.

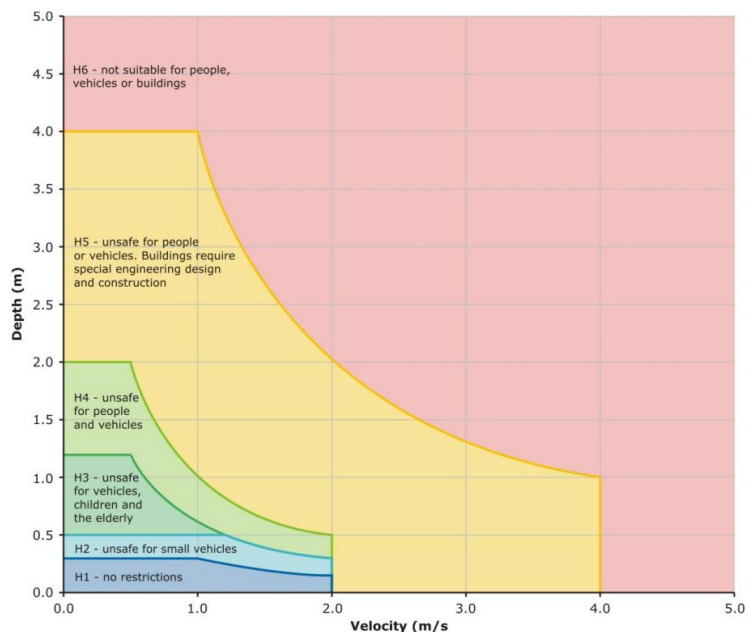


Figure 4-9: Combined Flood Hazard Curves (Smith et. al. 2014)

In conjunction with considering the hydraulic hazard using the flood depths and velocities from the hydraulic model, it is important to consider other criteria such as: size of the flood, effective warning time, flood readiness, rate of rise of floodwaters, depth and velocity of floodwaters, duration of flooding, evacuation problems, effective flood access and type of land use. These factors are assessed in **Table 4-10**.

Table 4-10: Hazard Assessment of Variables

Criteria	Weight	Comment
Size of the flood	Medium	The magnitude of a flood affects the depths and velocities produced in an event. Low flood hazard typically is associated with more frequent flood events while high hazard flows usually occur during rare (major) flood events. Typically, flood affectation in the study area increases significantly for rare events.
Depth and velocity of floodwaters	High	The flood hazard is related to the product of depths and velocity of flood waters which are influenced by the size of the flood. In Denman overland flows tend to be shallow but fast moving, while on the Hunter River deeper flood depth can be expected.
Rate of rise of floodwaters	Medium	The rate of rise of floodwaters is influenced by the catchment size, soil type, slope and land use. The spatial and temporal pattern of the rainfall is also related to the rate of rise. The rate of rise in the study area for the Denman and Muscle Creek catchments can be quite rapid due to the relatively small catchment size and shape of these catchments. The Hunter River catchment carries flow from a much larger upstream catchment and as such the rate of rise is considerably slower.

Criteria	Weight	Comment
Duration of flooding	Low	Typically, the longer the duration of flooding, the more disruption caused to the community and greater the potential flood damages. The duration of flooding from the Hunter River can be long, 12-48 hours, while flooding from the Muscle Creek is shorter 6-24 hours, and Denman catchment flooding is likely to be 1-5 hours.
Effective warning and evacuation time	Medium	Flood warning and evacuation is subject to the rate of rise, the flood awareness of the community and availability of a flood warning system. While there is a flood warning system for the Hunter River, there is currently no warning system for the Muscle Creek or the Denman catchment. While a flood warning system for the Muscle Creek should be considered, the local catchment is too small for a warning system to be of use.
Flood awareness and readiness of the community	Low	Flood awareness in the community is likely to be quite low due to considerable time since a large Hunter River flood (i.e. 2000). However, the significant June 2007 flood event on Muscle Creek means that flood awareness at this location should be reasonable. Ongoing community education is recommended to ensure awareness and readiness are developed and maintained in the future.
Effective flood access	Medium	Effective flood access is affected by depths and velocities of floodwaters, evacuation distance, the number of people using the evacuation route and effective communication. In the study area a number of streets could be inundated by floodwaters in larger events and consideration of evacuation timing is important. Flood access and evacuation issues are further discussed in Section 4.3 and 4.6.
Evacuation problems	Medium	Some flood prone areas are likely to experience evacuation problems in the catchments due to the rapid rate of rise of a flood event, the limited flood warning time and the demographics of the community. These problems could be further exacerbated by the time of day during which flooding occurs. However, in general most flood affected properties have relatively short evacuation distances.
Type of development	Medium	The type of development will influence factors such as the level of flood awareness, the mobility of occupants and population density. Long term residents are likely to have a higher level of flood awareness than those visiting the area. Further, mobility and evacuation is more difficult for a school, child care facility or aged care home.

An assessment of the variables presented in **Table 4-10** did not significantly change the flood hazard classifications using the AEMI classifications which are less influenced by these factors than the hazard classifications outlined in Appendix L of the NSW Floodplain Development Manual (NSW State Government, 2005). True flood hazard maps for the 1% AEP event are presented in the flood map compendium (Appendix A).

4.5 Hydraulic Categorisation

There are no prescriptive methods for determining what parts of the floodplain constitute floodways, flood storages and flood fringes. Descriptions of these terms within the Floodplain

Development Manual (NSW Government, 2005) are essentially qualitative in nature. Of particular difficulty is the fact that a definition of flood behaviour and associated impacts is likely to vary from one floodplain to another depending on the circumstances and nature of flooding within the catchment.

The hydraulic categories as defined in the Floodplain Development Manual are:

- **Floodway** - Areas that convey a significant portion of the flow. These are areas that, even if partially blocked, would cause a significant increase in flood levels or a significant redistribution of flood flows, which may adversely affect other areas.
- **Flood Storage** - Areas that are important in the temporary storage of the floodwater during the passage of the flood. If the area is substantially removed by levees or fill it will result in elevated water levels and/or elevated discharges. Flood Storage areas, if completely blocked would cause peak flood levels to increase by 0.1m and/or would cause the peak discharge to increase by more than 10%.
- **Flood Fringe** - Remaining area of flood prone land, after Floodway and Flood Storage areas have been defined. Blockage or filling of this area will not have any significant effect on the flood pattern or flood levels.

A number of approaches were considered when attempting to define flood impact categories across study catchments. Approaches to define hydraulic categories that were considered for this assessment included partitioning the floodplain based on:

- Peak flood velocity (m/s);
- Peak flood depth (m);
- Peak velocity * depth (sometimes referred to as discharge per unit width (m²/s));
- Cumulative volume conveyed during the flood event (m³); and
- Combinations of the above.

The definition of flood impact categories that was considered to best fit the application within the study catchments is defined in **Table 4-11**.

The hydraulic category map for 1% AEP and PMF event is included in the flood map compendium (Appendix A). It is also noted that mapping associated with the flood hydraulic categories may be amended in the future, at a local or property scale, subject to appropriate analysis that demonstrates no additional impacts (e.g. if it is to change from floodway to flood storage).

Table 4-11: Hydraulic Categories

Floodway	Velocity * Depth > 1.0 Velocity > 1.0	Areas and flowpaths where a significant proportion of floodwaters are conveyed (including all bank-to-bank creek sections).
Flood Storage	Velocity * Depth < 1.0 Velocity < 1.0 and Depth > 0.3 metres	Areas where floodwaters accumulate before being conveyed downstream. These areas are important for detention and attenuation of flood peaks.
Flood Fringe	Velocity * Depth < 0.6 Velocity < 1.0 and Depth < 0.3 metres	Areas that are low-velocity backwaters within the floodplain. Filling of these areas generally has little consequence to overall flood behaviour.

4.6 Access and Evacuation Constraints (ERP Classification)

In an effort to understand the potential emergency response requirements across different sections of the study area, flood emergency response precinct (ERP) classifications were prepared. The ERP classifications can be used to provide an indication of areas which may be inundated or may be isolated during floods. This information, in turn, can be used to quantify the type of emergency response that may be required across different sections of the floodplain during future floods. This information can be useful in emergency response planning.

The ERP classifications were prepared based upon information contained in the Australian Institute of Disaster Resilience's Guideline 7-2: 'Flood Emergency Response Classification of the Floodplain' (2017). This involved delineating the catchment into emergency response classifications based upon the flow chart presented in **Figure 4-10**.

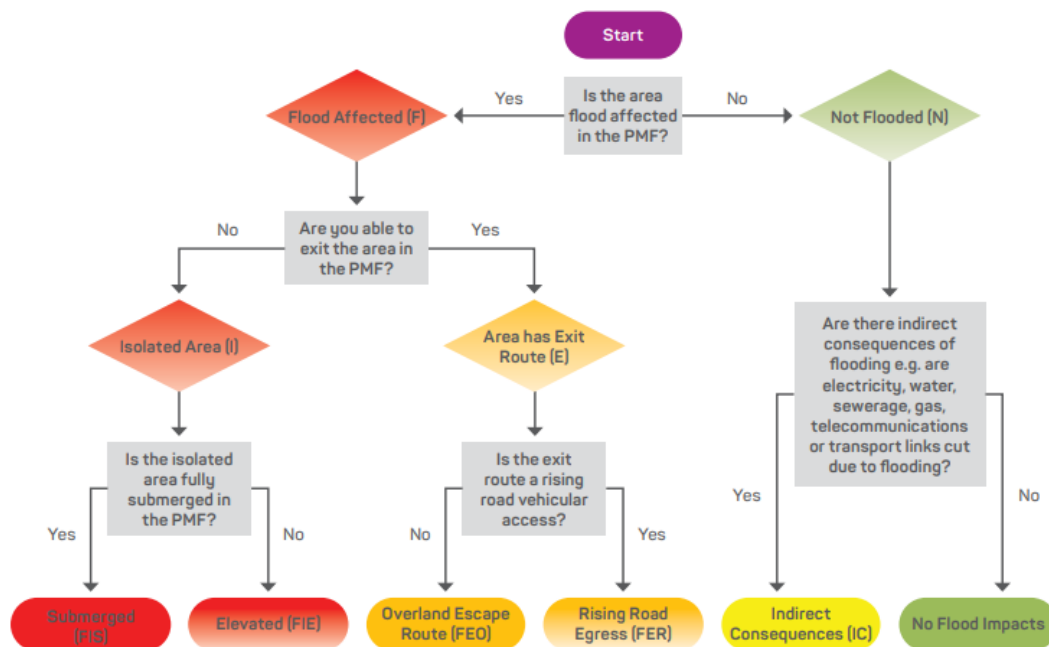


Figure 4-10: Flow chart for determining flood emergency response classifications

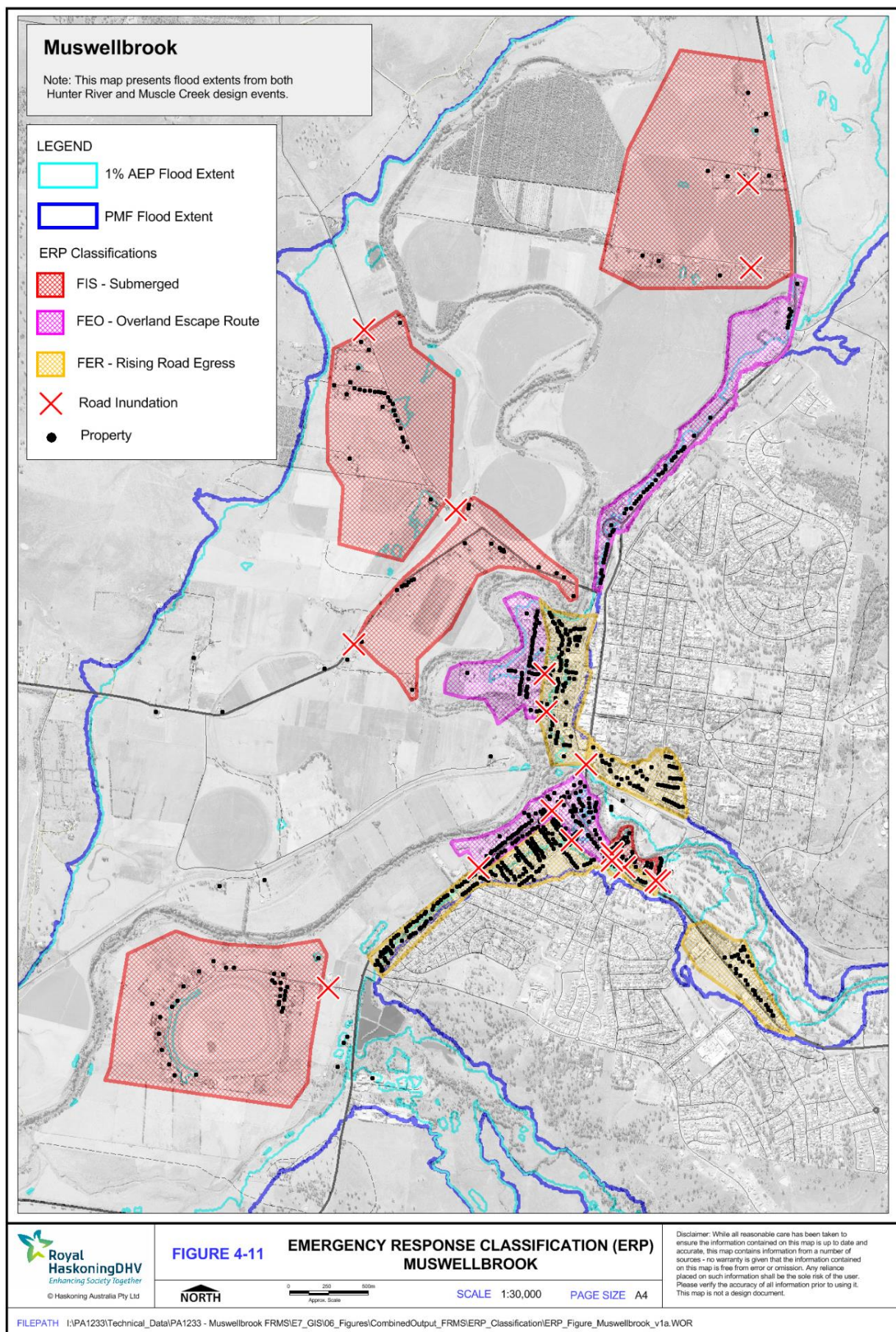
Source: Guideline: 7-2 Flood Emergency Response Classification of the Floodplain (AIDR 2017)

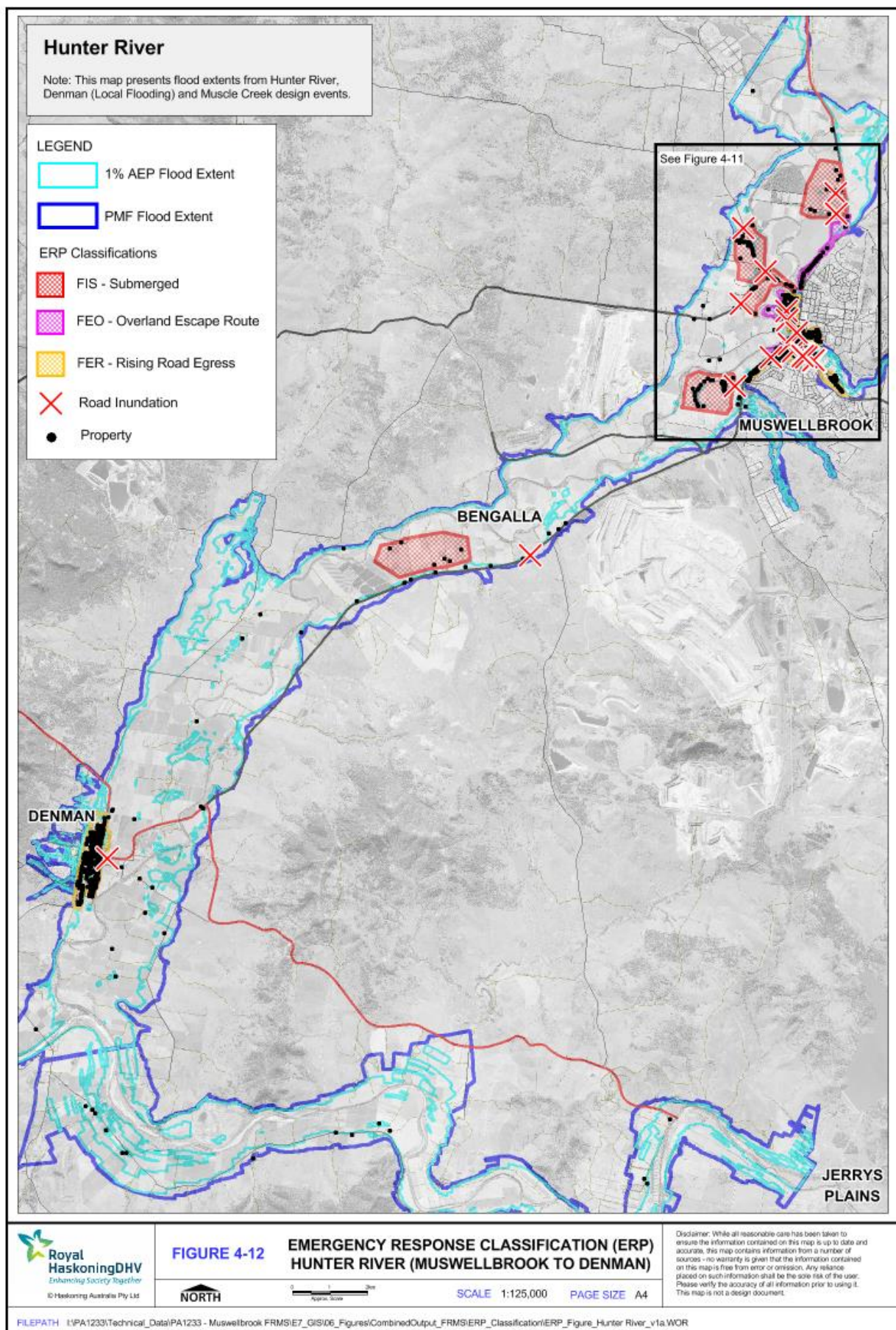
Key areas within the study area were classified based upon the ERP flow chart shown above. This was completed using the TUFLOW model results, digital elevation model and a road network GIS layer in conjunction with a consideration of the following factors:

- whether evacuation routes/roadways get “cut off” and the depth of inundation (a 0.2m depth threshold was used to define a “cut” road);
- whether evacuation routes continuously rise out of the floodplain;
- whether an area gets inundated during the nominated design flood and whether evacuation routes are cut or the lot becomes completely surrounded (i.e., isolated) by water before inundation;

- if evacuation by car was not possible, whether evacuation by walking was possible (a 0.5 metre depth threshold was used to define when a route could not be traversed by walking).

The resulting ERP classifications for the study area are provided in **Figure 4-11** and **Figure 4-12**. Classifications have been provided for 1181 out of 1239 (i.e. 95%) properties in the damages / inundation data base. The remaining 58 properties are either in the downstream 1D model section or are scattered on the Hunter River floodplain and therefore cannot be grouped into a classification area. The ERP GIS information will be provided to Council and the SES to aid evacuation and emergency response planning.





5 Review of Existing Planning Provisions

Within New South Wales, land use planning and development follows the following hierarchy, in decreasing order of seniority:

- Environmental Planning and Assessment Act (EPA Act)
- State Environmental Planning Policies (SEPP)
- Local Environmental Plans (LEPs)
- Development Control Plans (DCPs)

Land use planning and development controls are key mechanisms by which Council can manage some of the flood related risks within flood-affected areas of Muswellbrook and Denman (as well as across the wider LGA).

In the Muswellbrook LGA, development is controlled through the Muswellbrook Local Environment Plan (LEP) and various Development Control Plans (DCPs). The LEP is a planning instrument which designates land use and development in the LGA, while DCPs regulate development with specific guidelines and parameters.

A review of existing planning controls has been undertaken with the objective to:

- review the existing planning and development control framework relevant to the formulation of planning instruments and the assessment of development applications in flood affected areas, and
- make specific planning recommendations in regards to flood risk management, including an outline of suggested planning controls (refer **Section 5.4**).

5.1 Local Environment Plan

A Local Environmental Plan (LEP) is prepared in accordance with Part 3 Division 4 of the EP&A Act 1979 and operates as a local planning instrument that establishes the framework for the planning and control of land uses. The LEP defines zones, permissible land uses within those zones, and specific development standards and special considerations with regard to the use or development of land.

The Muswellbrook Local Environment Plan 2009 (LEP 2009) (Muswellbrook Shire Council, 2009) has been prepared in accordance with the NSW State Government's Standard Instrument (Local Environmental Plans) Order 2006, which requires local Council's to implement a Standard Instrument LEP. The State Government has created the Standard Instrument LEP to assist in streamlining the NSW Planning system.

5.1.1 Review of Flood Planning and Stormwater Regulations

A review of the LEP shows there are no specific clauses relating to either flooding or stormwater management. Points or references in the LEP to flood or stormwater related issues are defined below:

Point 2(d) of Clause 1.2 (aim of the plan) is flood related stating an aim of the LEP is:

“to manage development in flood-prone areas by ensuring any obstruction, re-direction or pollution of flood waters will not have adverse consequences for the environment or increase the risk of endangering life or property,”

Point 8 and 12 (defined below) of Clause 3.2 (Complying Development) states that:

(8) Drainage

- (a) All roof and surface water must be drained to the street and discharged to the consent authority’s nearest stormwater drainage system in accordance with an engineer’s design.
- (b) The drainage system must be designed for a 10 year return period, with excess flows designed to flow overland to the street.

(12) Stormwater must be disposed of by way of:

- (a) a registered stormwater easement, or
- (b) an inter allotment stormwater pit located within the property boundary, or
- (c) a pipe that connects to the kerb and gutter, or
- (d) an existing approved stormwater drain on site.

While point 3(e) of Clause 6.3 (Development control plan (DCP)) states the requirement for the provision stormwater and water quality controls are in the DCP.

5.1.2 Land Use

The Muswellbrook LEP 2009 identifies a number of land use zones including existing and future development areas, based on stated objectives for each zoning and provisions made for each zoning. The land use zones under the Muswellbrook LEP 2009 are as follows:

- Rural Zones: RU1 Primary Production, RU3 Forestry and RU5 Village;
- Residential Zones: R1 General Residential and R5 Large Lot Residential;
- Business Zones: B2 Local Centre and B5 Business Development;
- Industrial Zones: IN1 General Industrial and IN2 Light Industrial;
- Special Purpose Zones: SP2 Infrastructure;
- Recreation Zones: RE1 Public Recreation and RE2 Private Recreation;
- Environment Protection Zones: E1 National Parks and Nature Reserves, E3 Environmental Management and E4 Environmental Living; and
- Waterway Zones: W1 Natural Waterways.

Land use zones for Muswellbrook and Denman are presented in **Figure 5-1** and **Figure 5-2**. Following completion of the FRMS&P, it is recommended that a review of existing and proposed changes to land zoning be undertaken to consider the updated flood risk

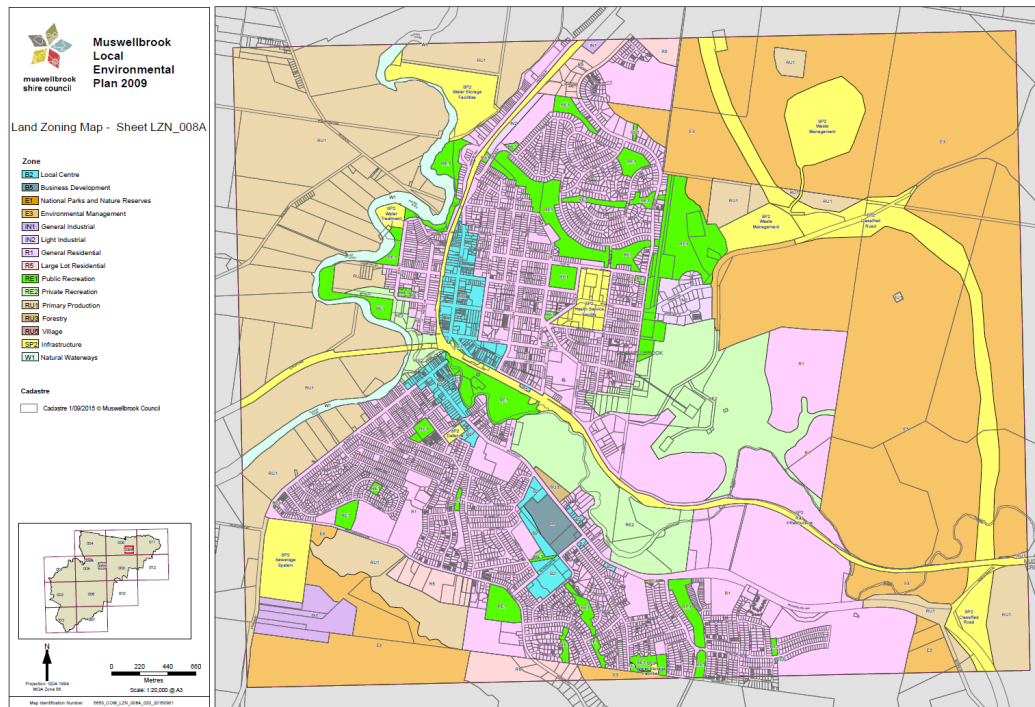


Figure 5-1: Muswellbrook Land Use Zones (LEP 2009)

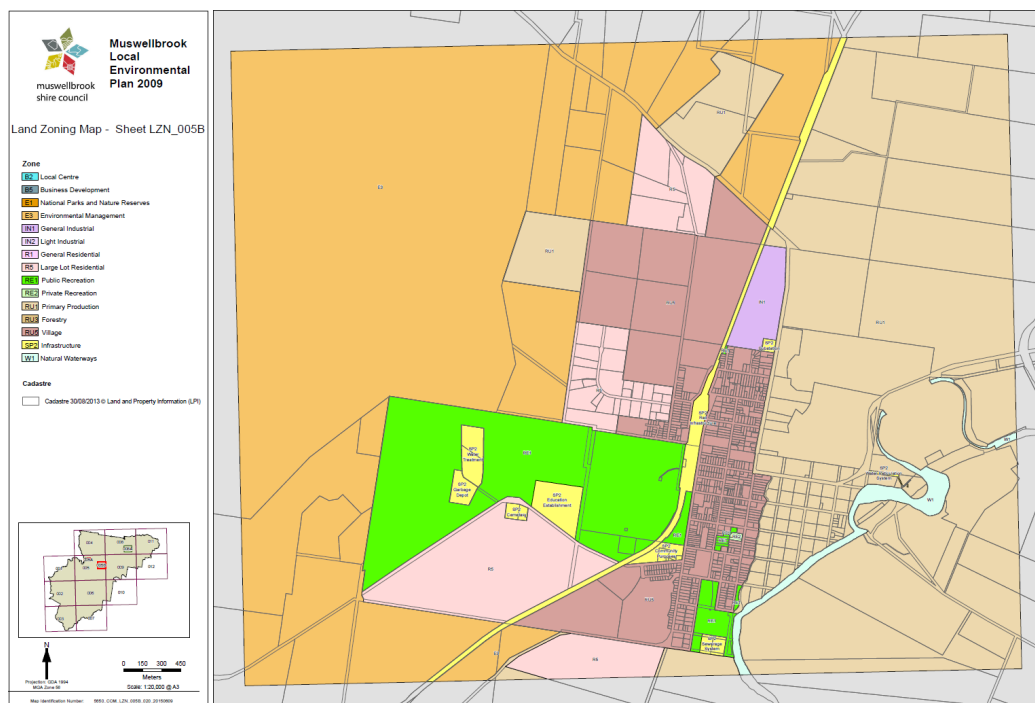


Figure 5-2: Denman Land Use Zones (LEP 2009)

5.1.3 Flood Planning Maps

The existing LEP 2009 does not currently include flood planning map. While inclusion of flood maps in the LEP is not necessarily recommended, as it can make them difficult to update, provision of the information in an online format may assist planning and emergency management activities.

5.1.4 Urban Release Area Maps

Proposed Urban Release Areas defined in the Muswellbrook LEP 2009 are presented in **Figure 5-3** and **Figure 5-4**. All areas appear to be above the mainstream PMF flood extents, though the impact of local overland flow would need to be considered.



Figure 5-3: Muswellbrook Urban Release Area (LEP 2009)

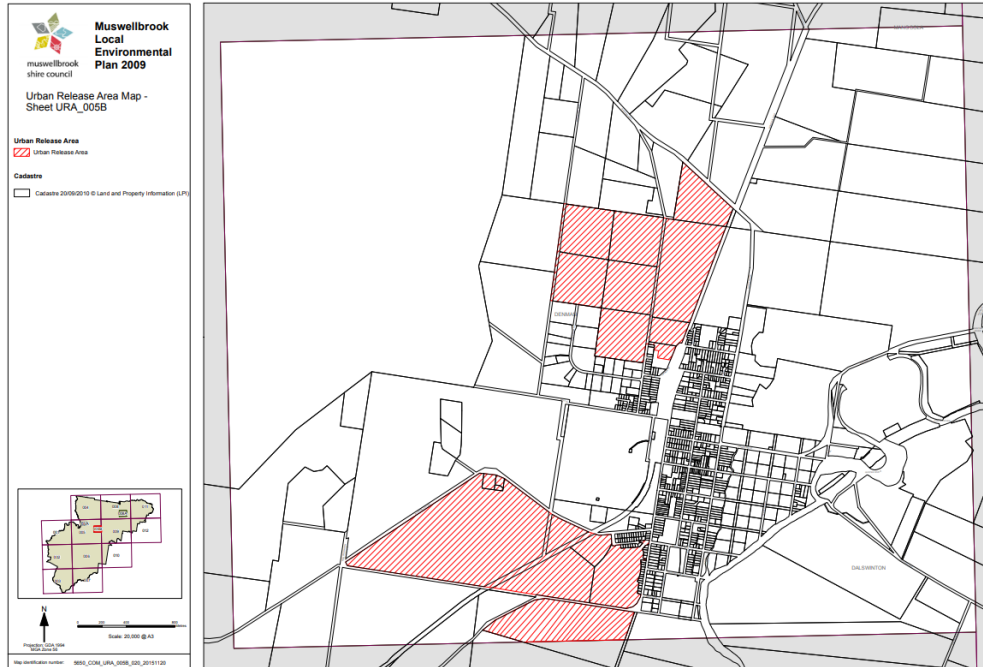


Figure 5-4: Denman Urban Release Area (LEP 2009)

5.2 Development Control Plan

A draft of the proposed update to the “Floodplain Management” section (Section 11a of Draft Muswellbrook Development Control Plan 2018), was provided to RHDHV by Council for review. The draft is expected to replace the existing Development Control Plan 2009 (DCP) which was gazetted in April 2009. It is understood that the draft “Floodplain Management” section will replace the existing Flood Prone Land chapter (Section 13 of DCP 2009).

It should be noted that the draft Floodplain Management section contains basically the same controls provided in the existing Flood Prone Land chapter (Section 13 of DCP 2009), however, it provides additional detail on the application requirements pertaining to flood related information. Specifically it defines when and the requirements of a either a Minor or Major Flood Assessment Report (FAR).

The draft Floodplain Management section also differentiates the assessment required for land between the Flood Planning Level (FPL) (i.e. 1% AEP + 0.5m free board) and the Probable Maximum Flood (PMF) and land below the FPL.

The DCP floodplain management policy is used to assess development proposals to determine if they are permissible and the required controls. A summary of key information is provided below.

5.2.1 Development and building principles – land between the flood planning level and Probable Maximum Flood

Development proposals on land subject to this section must be consistent with the principles contained in the NSW Floodplain Development Manual 2005, including, but not limited to consideration of the following issues:

- Evacuation
- Suitability for sensitive land uses

5.2.2 Development and building principles – land below the flood planning level

The following principles must be considered in Council's determination of development proposals on land below the flood planning level.

A. GENERAL PRINCIPLES APPLYING TO ALL DEVELOPMENT

Development must achieve the following:

1. Proposed development will not result in increased flood hazard or flood damage to other properties;
2. Proposed development should be of a type, height and scale that is compatible with the existing urban and historic fabric of the area;
3. Construction methods and materials for that part of the development below the Flood Planning Level should conform with section 11a.9 Flood Proofing Code;
4. Proposed development shall be able to withstand the force of flowing floodwaters, including debris and buoyancy forces;
5. Information required to be submitted with the development application proves that the above principles have been complied with; and
6. Development is undertaken in accordance with the NSW Floodplain Development Manual 2005.

In considering development, Council shall have particular regard to:

1. the primary objective of the Special Infrastructure (SP2) and Local Centre (B2) Zone, which is to facilitate the existing and continued operation of public uses;
2. the primary objective of the RE1 – Public Open Space zone, which is to facilitate the use of publicly zoned land for recreational purposes;
3. the primary objective of the RE2 - Private Open Space zone, which identifies land suitable for private public recreation use;
4. the primary purpose of the RU1 Primary Production zone, which is to preserve prime alluvial land for agricultural use. In the area covered by this Development Control Plan RU1 and W1 - Waterways zoning also recognises the eroding nature of some of the river bank;

5. The primary objective of the B2 - Local Centre zone which is to recognise the established non-retail functions of the existing business areas outside the main business centre of Muswellbrook.

In addition to the “general controls” there are six specific flood-related developments subject to additional controls including:

1. NEW RESIDENTIAL ACCOMMODATION Or ALTERATIONS AND EXTENSIONS TO RESIDENTIAL ACCOMMODATION
2. RURAL DEVELOPMENT
3. NON- RESIDENTIAL DEVELOPMENT
4. DEVELOPMENT PROTECTED BY A LEVEE
5. INTEGRITY OF THE HUNTER VALLEY FLOOD MITIGATION SCHEME
6. FENCING IN RACECOURSE ROAD AREA

A summary of key controls applied to some developments in the DCP include:

- The floor level of all habitable areas shall be at least 0.5m above the 1% AEP flood level, as determined by Council.
- Materials used are in conformity with the (provided) flood proofing code
- For Rural Areas - the afflux created at any other point on the flood plain will not be increased by more than 0.1m as a result of the development; and
- Council is satisfied the dwelling is not located in a high hazard flood area
- Floor levels for non-residential uses, excluding habitable areas, may be permitted below flood level provided the development is in accordance with the principles outlined in A. above.
- Provision shall be made for the safe storage and/or timely removal of goods, materials, plant and equipment in the event of a flood.
- An appropriate evacuation plan is considered to the satisfaction of Council
- Minimum floor levels for all developments in the township of Muswellbrook protected by the levee shall be 146.3 AHD (Australian Height Datum).
- Minimum floor levels for all developments in the township of Denman protected by the levee shall be 107.25m AHD (Australian Height Datum).
- Where new buildings or additions are proposed within 40m of the existing levee a structural engineer's certificate shall be submitted with a construction certificate certifying that the proposed structure has been designed to withstand the flood pressures, including debris and buoyancy forces, imposed in the event of an adjacent levee failure.
- Development on and within the vicinity of structures (including levees, floodgates, spillways and drains) operated by Council, but constructed under the *Hunter Valley Flood Mitigation Scheme*, will be managed by Council under the *Water Management Act* to ensure the continuing integrity of those structures.
- Council will require lodgement of a development application for the erection of fencing in this Racecourse Road area, other than rural fences such as 5-wire fences.

There are however, some recommendations for additions to development controls including:

- Lowest habitable floor levels should be elevated above finished ground level.
- Proponents are encouraged to construct at higher levels with available flood level information across a range of design flood magnitudes (up to Extreme Flood Level (i.e. PMF)).

It should also be noted that the requirements presented for a Minor or Major Flood Assessment Report (FAR) seem to be based on older 1D flood modelling techniques (i.e. the guidelines specify the number of cross-section required). Given that LiDAR elevation data is now available for the LGA the use of 2D flood modelling should be recommended for use in the FAR.

5.3 Flood Planning Level Considerations

Department of Planning Circular PS 07—03 (see Section 5.3.1) and associated guideline on development controls on low risk flood areas states:

“unless there are exceptional circumstances, councils should adopt the 100-year flood as the FPL for residential development. In proposing a case for exceptional circumstances, a council would need to demonstrate that a different FPL was required for the management of residential development due to local flood behaviour, flood history, associated flood hazards or a particular historic flood.”

The adoption of the standard 1% AEP (100yr ARI) + 0.5m freeboard is considered appropriate for the study area (Muswellbrook to Denman) as an examination of the difference between the 0.2% AEP (500yr ARI) and 1% AEP (100yr ARI) peak flood levels (as presented in **Table 4-1**) is typically less than 0.5m. This means that even in the 0.2% event, adoption of a standard FPL would mean that most newly approved developments would not be flooded above floor level.

The difference in peak flood level between the PMF and 1% AEP (100yr ARI) is 2 to 4 m. So that in an extreme event sheltering in place would not be possible and evacuation would be required. Given the large Hunter River catchment size, availability of flood level data and generally short evacuation distances, risk to life from an extreme event could be managed through appropriate evacuation management plans.

5.3.1 Department of Planning Circular PS 07—03 (2007)

The circular and (NSW Government Department of Planning, 2007) provides an overview of a new guideline (on development controls on low risk flood areas) to the Floodplain Development Manual and changes to the Environmental Planning and Assessment Regulation 2000 and section 117 Direction on flood prone land.

Relevant sections from the Guideline are shown below.

Categories of Flood Prone Land

To balance protection of existing and future inhabitants from flood hazard and the potential danger and damage associated with use of the flood prone land, the Manual promotes the appropriate use of flood prone land by breaking it down into areas dependent upon frequency of inundation, their hydraulic function (floodways in which floodwaters are conveyed, flood storage areas where flood waters are temporarily stored during flood events, and flood fringe areas) and flood hazard (a minimum of two categories, high and low). These categories assist councils in determining appropriate development limits and controls to reflect the variation in flood risk across flood prone land and the associated consequences on residents and their property. Key categories are:

1. *Floodways: Floodways are the areas of the floodplain which are essential to convey flood waters. Development of these areas would have significant adverse impacts upon flood behaviour which in turn may result in adverse effects on other development and the community. Development of floodways would also expose occupants and their property to significant levels of flood danger and damage.*
2. *Below the residential FPL: The area of the floodplain where residential development is subject to flood related development controls, i.e. below the residential FPL (as determined in accordance with the Floodplain Development Manual). These are the areas of the floodplain where development limits and controls are used to reduce the frequency of exposure of people and property to flood risk and the associated danger and damage. Development controls in this area need may limit the area that can be developed and may include minimum fill levels, minimum floor levels, the requirement to use flood compatible building materials and need to address emergency management issues as outlined in (3) below.*
3. *Above the residential FPL: The area of flood prone land above the residential FPL and therefore these are areas where residential development is not subject to flood related development controls. These areas generally have a low risk of flooding and are sometimes known as low flood risk areas. As such, they are areas where no development controls should apply for residential development but the safety of people and associated emergency response management needs to be considered and may result in:*
 - *Restrictions on types of development which are particularly vulnerable to emergency response, for example developments for aged care.*
 - *Restrictions on critical emergency response and recovery facilities and infrastructure. These aim to ensure that these facilities and the infrastructure can fulfil their emergency response and recovery functions during and after a flood event. Examples include evacuation centres and routes, hospitals and major utility facilities.*

Standards for Flood Controls for Residential Development

Councils are responsible for determining the appropriate flood planning levels for land within their local government area. Whilst the flood used to determine the residential FPL is a decision of the local council, the Manual highlights that FPLs for typical residential development would generally be based around the 100 year flood plus an appropriate freeboard (typically 0.5m).

This Guideline confirms that, unless there are exceptional circumstances, councils should adopt the 100 year flood as the FPL for residential development. In proposing a case for exceptional circumstances, a Council would need to demonstrate that a different FPL was required for the

management of residential development due to local flood behaviour, flood history, associated flood hazards or a particular historic flood.

Unless there are exceptional circumstances, councils should not impose flood related development controls on residential development on land with a low probability of flooding, that is, land above the residential FPL (low flood risk areas).

Justification for variations to the above should be provided in writing to, and agreed by, the Department of Natural Resources and the Department of Planning prior to exhibition of a draft local environmental plan or a draft development control plan that proposes to introduce flood related development controls on residential development.

5.4 Review of Floodplain Management Aspects of Muswellbrook Planning Policy's

A review of the floodplain management aspects of current or proposed Muswellbrook Planning Policy (i.e. LEP 2009 and the DCP) indicates that the LEP appears to be in line with regulatory requirements, however, it could be improved by considering the following point:

- The LEP could be improved by including specific clauses regarding flooding and stormwater management.

A review of the floodplain management aspects of the current or proposed Muswellbrook DCP indicates the DCP is in line with regulatory requirements (i.e. the Department of Planning Circular PS 07—03). It should be improved by considering the following points:

- Adoption of the floodplain planning control matrix (which differentiates controls depending on land use and whether they are located in the: floodway (i.e. high hazard), flood fringe (i.e. below FPL), or between FPL and PMF) that is provided in many LGA DCP's. This may simplify the DCP document.
- Ensure that sensitive uses such as: child care centres and Housing for Aged and Disabled persons" are considered separately due to the difficulties posed by evacuation of these facilities during flood events.
- It should be noted that the NSW Department of Planning & Environment is currently planning a reform of DCP's with the EP&A Act to be amended to require DCPs follow a standard format to improve consistency across local Councils and improve user navigation of the planning system and its controls (NSW Planning, 2017).

In addition to the above points the following should be considered for inclusion in the DCP:

- Lowest habitable floor levels should be elevated 0.2 m above finished ground level.
- Proponents encouraged to construct at higher levels with available flood level information across range of design flood magnitudes (up to Extreme Flood Level).
- Quantifying a practical/sensible limit on increases in flood affection. i.e. minor increases in local flooding of up to 10 cm within 10 m of a development that do not impact on an existing or planned building will be considered. Outside of this immediate area, changes of up to 2 cm will be considered on a merits based approach.

It is also recommended that flood maps are provided in an online format to assist planning and emergency management activities.

6 Assessment of Floodplain Management Measures

6.1 Identifying Floodplain Risk Management Measures

The NSW Floodplain Development Manual (NSW State Government, 2005) states that the purpose of a FRMS&P is to identify, assess and compare various flood risk management options to mitigate flood affectation and as such lower the overall flood damages and/or risk to life in the area considered by the study. This process involves assessing the flood impacts of management options for existing, future and continuing flood risk on flood behaviour and hazard and the social, economic, ecological and cultural costs and benefits of options. Assessment of these factors forms the basis for robust decision making in the management plan. The following sections assess a range of flood mitigation options to mitigate and manage flood risk in the study area.

6.2 Risk Management Measures Categories

Measures which can be employed to mitigate flooding and reduce flood damages can be separated into three broad categories:

Flood modification measures: modify the flood's physical behaviour (i.e. depth, velocity) and includes flood mitigation dams, retarding basins, on-site detention, channel improvements, levees, floodways or catchment treatments.

Ten potential flood modification measures were presented to Council in a letter dated 23 January 2018 (refer Appendix A). This was refined to a list of seven options that were modelled as part of the study as detailed in Section 6.4.

Property modification measures: modify property and land use including development controls. This is generally accomplished through such means as flood proofing (house raising or sealing entrances), planning and building regulations (i.e. zoning) or voluntary purchase.

Properties suitable for either Voluntary House Raising (VHR) and/or Voluntary Purchase (VP) have been assessed as detailed in Section 6.4.9.

Response modification measures: modify the community's response to flood hazard by informing flood-affected property owners and users about the nature of flooding so that they can make informed decisions. Examples of such measures include provision of flood warning and emergency services, improved information, awareness and education of the community and provision of flood insurance.

The development of a flood warning system for Muscle Creek has been assessed in the FRMS as detailed in Section 7.

6.3 Potential Floodplain Risk Management Measures

The following sections provide a first pass assessment of options by determining if they would be applicable/suitable to the flooding characteristics of the study area. The study area is affected by three different flood mechanisms, the mitigation options have been labelled based on the flood mechanism they are related to, including:

- HRS – Hunter River flood mechanism
- MC – Muscle Creek flood mechanism

- D – Denman local catchment flood mechanism
- P – study wide property modification measures (i.e. VHR & VP)

Section 6.3.1 provides a list of options that were considered applicable/suitable, and subjected to a detailed assessment as part of this FRMS.

6.3.1 List of potential flood mitigation options assessed in this FRMS

The following mitigation options were considered applicable/suitable for reducing flood risk in the study area, and were therefore the subject of a detailed assessment as part of this FRMS. Please refer to the appropriate report sections for detailed descriptions and assessment outcomes for each option.

Flood modification measures

HRS1 - Backwater Levee Option – Section 6.4.1

HRS2 - Sydney Street Levee Option – Section 6.4.2

HRS3 - Channel Vegetation Removal – Section 6.4.3

MC1 - Enhance creek bank adjacent to golf course – Section 6.4.4

MC2 - Golf course flood bund – Section 6.4.5

MC3 - Channel vegetation management – Section 6.4.6

D1 - Blockage / maintenance policy to unblock 2 Virginia St (Denman) culverts – Section 6.4.7

D2 - Upgrade to Virginia St (Denman) culvert (north) - Section 6.4.8

Property modification measures

P1 - Voluntary House Raising and Voluntary Purchase (properties below 1% AEP) - Section 6.4.9

P2 - Voluntary House Raising and Voluntary Purchase (properties below 2% AEP) - Section 6.4.10

P3 - Voluntary House Raising and Voluntary Purchase (properties below 5% AEP) - Section 6.4.11

Response modification measures

FW1 - Flood Warning System - The development of a flood warning system for Muscle Creek is presented in detail in Section 7.

6.4 Description and Assessment of Floodplain Management Measures

Flood modification measures

Flood modification measures refer to physical modifications on the floodplain which alter the flood behaviour and ultimately reduce the flood affectation (flood levels or velocities) in particularly vulnerable areas.

6.4.1 HRS1 – Muswellbrook Backwater Levee Option

Overview

Flood model results indicate that there are a significant number of properties located in low lying areas adjacent Possum Gully, south of Lower Hill Street and West of Ford Street that are effected by backwater flooding from the Hunter River. To protect the area from backwater flooding the levee could be extended approximately 820 m in a south easterly direction until it ties in with higher ground at the William Street rail bridge as presented in **Figure 6-1**. The existing 1% AEP (100yr ARI) water level is 145.3 m AHD while the 0.2% AEP (500yr ARI) water level is 145.6 m AHD, and the design water level reduces by 0.2 m along the length of the levee alignment. Assuming a freeboard of 0.5 m, a crest level of 145.8 m AHD to 145.6 m AHD along the length of the levee is considered appropriate. Based on this crest level, the levee ranges between 0.5 m to 2.0 m in height.

Provision of a 3.6m x 3.6m box culvert has been included to allow drainage of the Possum Creek Gully catchment. A non-return valve (i.e. flapped gate) is included to prevent backwater flooding. This culvert was considered large enough to pass the Q100 from the Possum Creek catchment (SMEC, 2013).

Figure 6-1 provides details of key components of the required works. The flood model was updated to include these features and a suite of design runs were simulated to determine the impacts of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-1: Outline Details of HRS1 – Muswellbrook Backwater Levee Option

- NB: 1) Extend existing levee by 820m with a crest level of 145.8 m AHD to 145.6 m AHD
 2) A 3.6m x 3.6m culvert with flapped outfall is required to drain Possum Gully catchment.
 3) A typical earth embankment design with a 3m wide crest and 1 in 4 batter is appropriate
 4) An allowance for 65m of sheet piling is included to reduce the levee footprint in the vicinity of the two road areas

Results

This option is able to prevent backwater flooding into the protected area, to significantly reducing the number of flood affected properties in Muswellbrook as presented in **Table 6-1**. **Table 6-2** shows that for the 1% AEP (100yr ARI) design event there is a reduction in 22 occurrences of above floor flooding and a net reduction of 73 (75 no longer flooded, though 2 newly flooded) properties experiencing yard or underfloor flooding. Due to the loss in floodplain storage 67 properties will experience slightly higher flood levels in the 1% AEP event, though the average increase is only 1cm and the maximum increase is 5cm. Changes in floodplain hydraulics elsewhere mean that some 233 properties will experience reduced flood level of up to 6cm. Because the PMF overtops the levee there is no reduced property flooding for this extreme event.

This option significantly reduces flood affectation and damages for all events up to the PMF in the Muswellbrook area by preventing backwater flooding as presented in **Table 6-1**. There is a nearly \$100,000 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$1.45 Million. However, the cost of constructing this mitigation option is \$2.25 Million (a cost breakdown for this measure can be found in **Appendix B**). The calculated

benefit/cost (B/C) ratio for this option is 0.65. Since the B/C ratio is less than one, this option is unlikely to be recommended for implementation or further investigation.

Table 6-1: Change in Property Affection and Damages for Mitigation Measure - HRS1
Muswellbrook Backwater Levee Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	2	-\$142,000
0.2% / 500yr	37	90	\$3,525,268
0.5% / 200yr	26	81	\$2,634,703
1% / 100yr	22	73	\$2,194,234
2% / 50yr	15	61	\$1,694,663
5% / 20yr	5	50	\$637,055
10% / 10yr	0	6	\$43,000
Reduction in Annual Average Damages (AAD)			\$98,250
Reduced Damages (Over 50 years)			\$1,454,178
Cost of Mitigation Option			\$2,250,000
Benefit/Cost			0.65
Reduction in Damages (%)			9%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-2: Change in (1% AEP) Property Affection and Flood Levels Option - HRS1

HRS1 - Backwater Levee Option		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	22	75
newly flooded / wet	0	2
net change	22	73
No. locations with increased flood depth		67
Av. increase (m)		0.01
max increase (m)		0.05
No. locations with reduced flood depth		233
Av. decrease (m)		0.01
max decrease (m)		0.06

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

Construction of this Backwater Levee is only expected to impact a small number of residents as the majority of the levee can be built on public land. Negotiations with impacted residents will be required for the acquiring of the land or an easement for the construction and ongoing maintenance of the levee. As the levee construction will protect residents from flooding and reduce the resultant economic loss and disruption, it is anticipated that residents would be in support of the levee. There is also only very minor negative flood related impacts associated with this options, so it is anticipated that community opposition would be minimal as the levee can be promoted as an extension to an existing flood defence. Environmental impacts, in the form of minor vegetation loss and general construction impacts, are considered relatively minor.

6.4.2 HRS2 - Sydney Street Levee Option

Overview

Flood model results indicate that there are a significant number of properties located along Sydney Street between Forbes Street and Jordan Street which are flooded in the 2% AEP (50yr ARI) design event. To protect the area from flooding, an 840 m levee along the banks of the Hunter River is required. To prevent outflanking or inundation from Muscle Creek flood waters, the levee would then need to extend for 555m parallel to Maitland Street, tying into higher ground south of Francis Street. The proposed alignment and crest elevations are presented in **Figure 6-2**. An allowance for temporary flood barriers is required for the 4 road crossings and would need to be considered the design and operation of the option.

The design provides for approximately 0.5m freeboard for the 1% AEP (100yr ARI) and is not overtopped in the 0.2% AEP (500yr ARI) by Hunter River levels but is slightly overtopped by Muscle Creek floodwaters, though inundation extents and levels are significantly reduced compared to existing conditions. Based on the design crest level the levee ranges between 0.5 m to 2.0m in height.

Figure 6-2 provides details of key components of the required works. The flood model was updated to include these features and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-2: Outline Details of HRS2 – Sydney Street Levee Option

- NB: 1) 840 m earth levee along the banks of the Hunter River (Sydney St to Sydney St) with a crest level of 145.5 m AHD to 144.1 m AHD including allowance for local drainage.
- 2) To minimise property disturbance a masonry wall would be for 555m parallel to Maitland Street, tying into higher ground south of Francis Street
- 3) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate for (1), while a masonry wall with 2m wide footing is appropriate for (2).
- 4) An allowance for temporary flood barriers is required for the 4 road crossings

Results

This option is able to prevent inundation of the protected area significantly reducing the number of flood affected properties in Muswellbrook as presented in **Table 6-3**. **Table 6-4** shows that for the 1% AEP (100yr ARI) design event, there is a net reduction in 54 (61 no longer flooded, though 7 newly flooded) occurrences of above floor flooding and a net reduction of 71 (80 no longer flooded, though 9 newly flooded) properties experiencing yard or underfloor flooding. The proposed levee produces a loss in floodplain storage and changes to the available flow paths, causing a number of additional properties (mainly 7 commercial properties along Maitland Street) to be flooded in the 1% AEP event when previously they were not. In addition to these 7 newly flooded properties, another 139 properties will experience slightly higher flood levels in the 1% AEP event; though the average increase is only 8cm and the maximum increase is 43cm. Changes in floodplain hydraulics elsewhere mean that some 149 properties will experience reduced flood levels of up to 84cm. Because the PMF overtops the levee there is no reduction in property flooding for this extreme event.

This option significantly reduces flood affectation and damages for all events up to the PMF in the Muswellbrook area by preventing flooding as presented in **Table 6-3**. There is an \$180,000 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$2.66 Million. However, the cost of constructing this mitigation option is \$3.5 Million (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 0.76. Since the B/C ratio is less than one, this option is unlikely to be recommended for implementation or further investigation.

Table 6-3: Change in Property Affection and Damages for Mitigation Measure – HRS2
Sydney Street Levee Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	2	-\$96,335
0.2% / 500yr	47	15	\$4,049,595
0.5% / 200yr	61	49	\$5,115,133
1% / 100yr	54	71	\$4,780,886
2% / 50yr	45	86	\$3,834,637
5% / 20yr	-4	93	\$867,458
10% / 10yr	0	4	\$32,299
Reduction in Annual Average Damages (AAD)			\$180,139
Reduced Damages (Over 50 years)			\$2,666,185
Cost of Mitigation Option			\$3,500,000
Benefit/Cost			0.76
Reduction in Damages (%)			16%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-4: Change in (1% AEP) Property Affection and Flood Levels Option – HRS2

HRS2 - Sydney Street Levee Option		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	61	80
newly flooded / wet	7	9
net change	54	71
No. locations with increased flood depth		139
Av. increase (m)		0.08

max increase (m)	0.43
No. locations with reduced flood depth	149
Av. decrease (m)	0.20
max decrease (m)	0.84

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

Construction of the Sydney Street Levee will impact on a significant number of private properties. While the majority of properties will have beneficial flood outcomes due to its construction there are a number of properties along Maitland Road on the outside of the defence who will experience increased negative flood behaviour. It is also possible that the levee will block river views which may cause opposition to its construction. As most properties only experience above floor flooding in the 2% AEP (50 yr ARI) event, most residents will not have experienced significant flood losses, so may be dubious of the overall benefit of the levee. The levee is to be constructed mostly on private property which Council will need to acquire an easement for construction and ongoing maintenance.

Environmental impacts in the form of minor vegetation loss and general construction impacts are considered relatively minor.

6.4.3 HRS3 - Channel Vegetation Removal

Overview

Changes to land management along the banks of the Hunter River significantly increased the amount of near bank vegetation. The presence of vegetation increases the hydraulic roughness which for the same river discharge, produces higher local flood levels. During the update of the Flood Study model (RHDHV, 2017) it was found that a representation of the effects of increased roughness due to increased near channel vegetation (that has occurred over the past 30-40 years) was required to produce a model that could match observed flood behaviour. The areas of vegetation were digitised in a GIS layer and given a corresponding hydraulic roughness (Mannings "n") of 0.15 whereas previously the roughness was only 0.035 which represents short grass or pasture.

By removing this layer of riparian vegetation, the hydraulic roughness is significantly reduced which will result in lower flood levels. To achieve this situation, the existing vegetation would need to be removed. To prevent vegetation from being re-established land management practices would have to revert back to what was previously carried out. It should be noted that while channel vegetation removal may result in a local reduction in flood levels, it is likely to result in increased downstream flood levels due to reduced floodplain storage effects and increases in the speed of the flood wave.

An example of the areas of vegetation removal are presented in Figure 6-3. It was assumed that all vegetation along the length of the model was removed. A total of 260 hectares of vegetation removal was modelled in this scenario. The flood model was updated to include the change in hydraulic roughness and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-3: Outline Details of HRS3 – Channel Vegetation Removal Option

- NB: 1) The above shows an example area of in-channel bank vegetation that has established in the past 30-40 years.
- 2) This option considers the removal and ongoing maintenance of maintained grass on these in bank areas.
- 3) This is assumed to result in a reduction in roughness from Mannings "n" of 0.15 to 0.035.
- 4) Along the approximate 40km of River in the study area a total of 260 Hectares of vegetation was mapped as requiring clearing (i.e. this is on average an approximate 60m wide strip along the river).

Results

The results suggest this option is able to significantly reduce the number and depth to which properties are flooded along the Hunter River floodplain as presented in **Table 6-5**. **Table 6-6** shows that for the 1% AEP (100yr ARI) design event there is net a reduction in 66 (68 no longer flooded, though 2 newly flooded) occurrences of above floor flooding and a net reduction of 53 (55 no longer flooded, though 2 newly flooded) properties experiencing yard or underfloor flooding. Because the option is able to nearly globally reduce flood levels, in the 1% AEP event, some 297 properties will experience reduced flood levels of an average of 25cm with maximum reductions of up to 78cm predicted. Changes in local hydraulics do still mean that a small number (24) of properties will experience increased 1% AEP flood levels of up to 16cm.

Even in the PMF this option is able to reduce the number of properties that experience above floor flooding and lower flood levels results in a significant reduction in damages for the PMF unlike all other options.

This option significantly reduces flood affectation and damages for all events up to the PMF in the Muswellbrook area by preventing flooding as presented in **Table 6-5**. There is a \$327,500 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by

\$4.85 Million. However, the cost of implementing this mitigation option is \$8.0 Million (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 0.61. Since the B/C ratio is less than one, this option is unlikely to be recommended for implementation or further investigation. However, it is possible that a cheaper more targeted vegetation management option that focusses on areas adjacent to Muswellbrook only may produce a B/C ratio above 1.

Table 6-5: Change in Property Affection and Damages for Mitigation Measure – HRS3
Hunter River Channel Vegetation Removal Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	14	0	\$4,418,317
0.2% / 500yr	58	44	\$5,904,670
0.5% / 200yr	80	42	\$7,043,954
1% / 100yr	66	53	\$6,455,685
2% / 50yr	68	85	\$5,846,512
5% / 20yr	19	158	\$2,581,862
10% / 10yr	0	11	\$154,626
Reduction in Annual Average Damages (AAD)			\$327,523
Reduced Damages (Over 50 years)			\$4,847,592
Cost of Mitigation Option			\$8,000,000
Benefit/Cost			0.61
Reduction in Damages (%)			29%

Notes: Reduction in the (net) number of properties is compared to the base case.

Table 6-6: Change in (1% AEP) Property Affection and Flood Levels Option – HRS3

HRS3 - Hunter River Channel Vegetation Removal Option		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	68	55
newly flooded / wet	2	2
net change	66	53
No. locations with increased flood depth		24
Av. increase (m)		0.08
max increase (m)		0.16

No. locations with reduced flood depth	297
Av. decrease (m)	0.25
max decrease (m)	0.78

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

Removal of channel vegetation will result in a significant loss of potential wildlife habitat and would cause a significant loss in local flora and fauna. The loss of vegetation may also result in increased bank erosion and cause increased channel mobility. These practices are also against current best management practices for river and stream management and are unlikely to gain approval from consent authorities, such as Local Land Services. Recent research has identified a need for at least 30% or greater percentage foliage cover to mitigate against erosion.

The office of Sustainable Land Management within LLS is the consent authority for vegetation removal. The legislation does not allow removal of native vegetation within 50m buffer of Hunter River.

As the option does significantly reduce flood levels and associated flood related damages the resulting social impact of floods on the community should also be reduced. However, loss of potential visual and environmental amenity should also be considered.

6.4.4 MC1 - Enhance Creek Bank adjacent to Golf Course

Overview

Flood model results indicate that there are two low points along the Muscle Creek bank adjacent to the Muswellbrook Golf Course. These low banks allow flood waters to escape the channel and form an overland flow path that floods a significant number of properties west of Bell Street. Enhancing the creek banks at these two low points could ensure floodwaters are maintained in the channel reducing the number of properties that are flooded. This option is also important to ensure emergency access across Muscle Creek. Bell Street is overtopped in the 5% AEP (20yr ARI) and Bridge Street is inundated in the 20% AEP (5yr ARI).

The location and required elevation of the two creek banks that would be enhanced is presented in **Figure 6-4**. The concept design is able to provide protection for events up to and including the 1% AEP (100yr ARI) flood. Based on this crest level the artificial bank height ranges between 0.5 m to 3.0m in height.

Provision of a 1.2m diameter pipe (and non-return valve) has been included to allow drainage of the golf course.

Figure 6-4 provides details of key components of the required works. The flood model was updated to include these features and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-4: Outline Details of MC1 – Enhance Creek Bank adjacent to Golf Course

- NB: 1) Bell Street Levee/Bank is 220m long and is typically < 1m high, though ~40m is up to 1.5m in height assuming a crest height of 148.3 m AHD
- 2) The Golf Course Drain Levee/Bank is 175m long and is typically < 0.5m high, though the ~25m length that would fill the drainage ditch is up to 3.0m high assuming a crest height of 148.5 m AHD. Provision of a 1.2m diameter pipe (and non-return valve) has been included to allow drainage of the golf course
- 3) Railway levee/bund is 200m long and 1m high – this is an optional bund to prevent water flowing north for events > 1% AEP.
- 4) A 90m bund on the northern creek bank protects the northern approach to the Bell St Bridge and is up to 1.5m high assuming a crest level of 149.0 m AHD
- 5) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate

Results

This option is able to prevent overland flooding for a significant number of properties between the 10% AEP (10yr ARI) and 1% AEP (100yr ARI) design event as presented in **Table 6-7**. The changes to the inundation extent and peak flood levels for the 1% AEP (100yr ARI) are presented in **Figure 6-5** and show the large area either side of Maitland Street that is now flood free, or experiences significantly reduced flood levels. The figures show that in-channel flood levels upstream of the Bell Street Bridge are significantly increased and there is a small downstream area near Bridge Street with higher water levels and a slightly increased inundation extent. **Table 6-8** shows that for the 1% AEP (100yr ARI) design event there is a reduction in 31 occurrences of above floor flooding and a net reduction of 28 (30 no longer flooded, though 2 newly flooded) properties experiencing yard or underfloor flooding. The scheme includes the railway embankment to prevent the newly created overland flow path that occurs to the north of the river that would cross the railway line in event above the 1% AEP. Due to the loss in floodplain storage 6 properties will experience slightly higher flood levels in the 1% AEP event, though the average increase is only 8cm and the maximum increase is 16cm. Reduced overland

flow also mean that some 47 properties will experience reduced flood levels of up to 68cm. It should be noted that the design is most effective up to the 1% AEP as the channel capacity is exceeded at other locations along the golf course in larger events.

This option significantly reduces flood affectation and damages for all events up to and including the 0.5% AEP (200yr ARI) in the Muscle Creek area by reducing an overland flow path that currently floods 17 properties in the 5% AEP (20yr ARI) event (refer **Table 6-7**). There is a \$123,600 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$1.83 Million. The cost of constructing this mitigation option is \$0.84 Million which is quite low considering the potential benefit (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 2.2. Since the B/C ratio is significantly above one, this option should be considered for further investigation and potential implementation.

Table 6-7: Change in Property Affection and Damages for Mitigation Measure - MC1
Enhance Creek Bank adjacent to Golf Course Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	0	-\$9,620
0.2% / 500yr	1	4	\$434,683
0.5% / 200yr	9	10	\$996,073
1% / 100yr	31	28	\$1,929,695
2% / 50yr	22	54	\$1,824,305
5% / 20yr	17	44	\$1,269,328
10% / 10yr	0	15	\$224,088
Reduction in Annual Average Damages (AAD)			\$123,598
Reduced Damages (Over 50 years)			\$1,829,339
Cost of Mitigation Option			\$840,000
Benefit/Cost			2.18
Reduction in Damages (%)			11%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-8: Change in (1% AEP) Property Affection and Flood Levels Option – MC1

MC1 - Enhance Creek Bank adjacent to Golf Course		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	31	30
newly flooded / wet	0	2
net change	31	28

No. locations with increased flood depth	6
Av. increase (m)	0.08
max increase (m)	0.16
No. locations with reduced flood depth	47
Av. decrease (m)	0.34
max decrease (m)	0.68

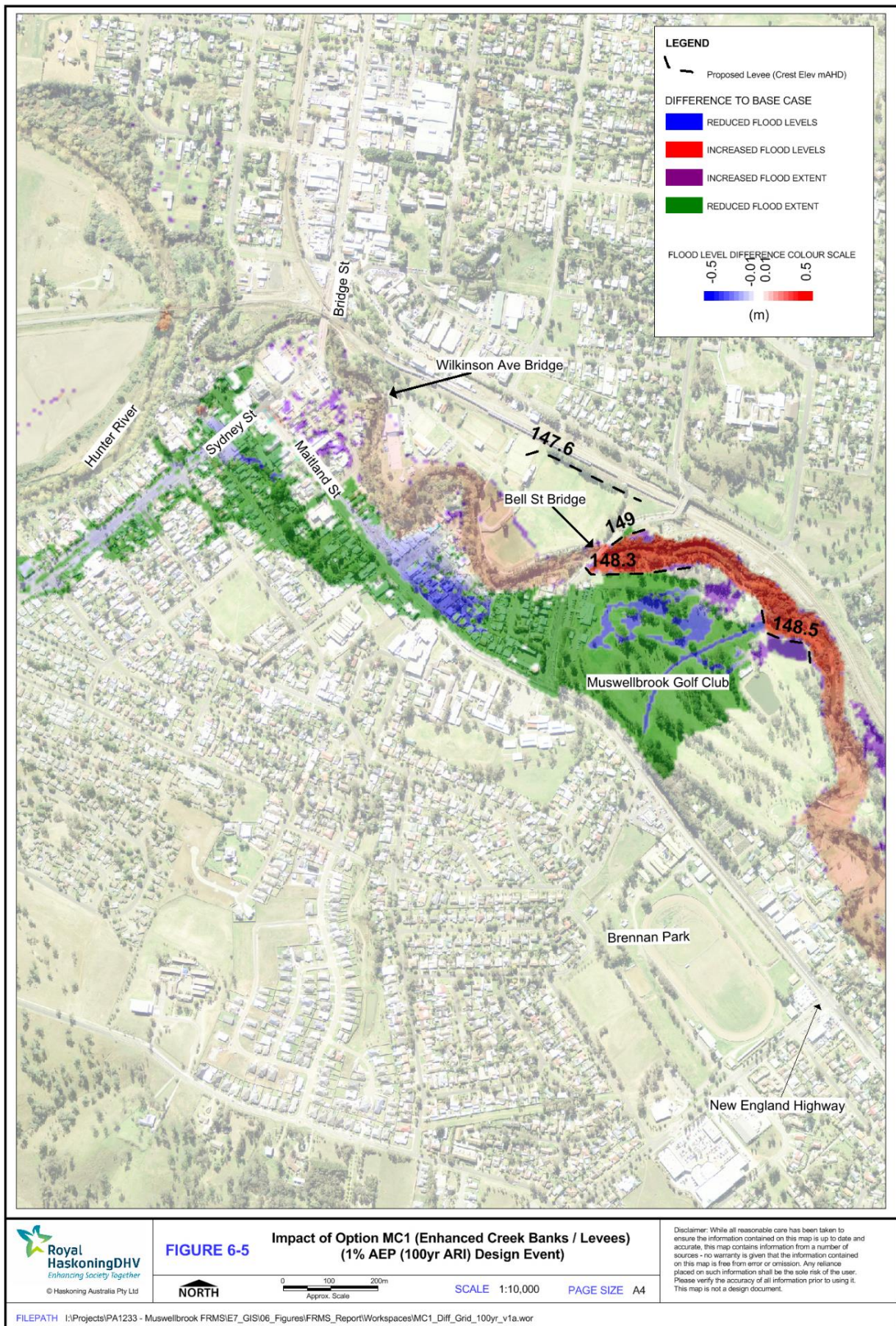
Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

Enhancement of the creek banks adjacent to the Muswellbrook Golf Course appears to be a cost effective measure that is able to significantly reduce flood losses to the community in events up to and including the 1% AEP (100yr ARI) producing a significant overall reduction in AAD. The inclusion of the railway levee is also able to reduce flood damages for both 0.5% AEP (200yr ARI and 0.2% AEP (500yr ARI).

Construction of this option is entirely on recreation land and should have minimal impact on the operation of the Golf Course. It is anticipated that there would be minimal opposition to this option. Environmental impacts in the form of minor vegetation loss and general construction impacts are considered relatively minor and short term. Minor visual or aesthetic impact should be minimised through appropriate landscaping treatments.

Implementation of this option results in Bell Street being available as an important transport link in events up to and including the 1% AEP. Protection significantly above this level would require raising the height of the bridge which is likely to be prohibitively expensive. After implementation of MC1 the Bell Street route would only be closed at the peak of an extreme flood and would be closed for less than 4 hours.



6.4.5 MC2 – Muswellbrook Golf Course Flood Bund

Overview

Flood model results indicate that there are two low points along the Muscle Creek bank adjacent to the Muswellbrook Golf Course. These low banks allow flood waters to escape the channel and form an overland flow path that floods a significant number of properties. Construction of a flood bund or levee that traps the floodwaters on the Golf Course and prevents the overland flow path from occurring is considered an appropriate option to reduce flood risk in Muswellbrook. This option has a similar affect to that explored in MC1 (above), however, has the added advantage of increasing floodplain storage and detention. This option is also important to ensure emergency access across Muscle Creek. Bell Street is overtopped in the 5% AEP (20yr ARI) and Bridge Street is inundated in the 20% AEP (5yr ARI).

The location and required elevation of the bund(s) (levee) is presented in **Figure 6-6**. Based on this crest level the levee height ranges between 0.5 m to 2.5m in height.

Figure 6-6 provides details of key components of the required works. The flood model was updated to include these features and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-6: Outline Details of MC2 – Muswellbrook Golf Course Flood Bund

- NB: 1) The Golf Club Levee/Bund is 330m long and is typically 2 to 2.5 m high.
 2) Railway levee/bund is 200m long and 1m high – this is an optional bund to prevent water flowing north for events > 1% AEP.
 3) A 90m bund on the northern creek bank protects the northern approach to the Bell St Bridge and is up to 1.5m high assuming a crest level of 149.0 mAHd
 4) A typical earth embankment design with a 3m crest and 1 in 4 batter is appropriate

Results

This option is able to prevent overland flooding for a significant number of properties between the 10% AEP (10yr ARI) and 1% AEP (100yr ARI) design event as presented in **Table 6-9**. The changes to the inundation extent and peak flood levels for the 1% AEP (100yr ARI) are presented in **Figure 6-7** and show the large area either side of Maitland Street that is now flood free, or experiences significantly reduced flood levels. The figures show that in-channel flood levels upstream of the Bell Street Bridge are significantly increased and there is a small downstream area near Bridge Street with higher water levels and a slightly increased inundation extent. **Table 6-10** shows that for the 1% AEP (100yr ARI) design event there is a reduction in 31 occurrences of above floor flooding and a net reduction of 31 (31 no longer flooded, and no newly flooded) properties experiencing yard or underfloor flooding. The scheme includes the railway embankment to prevent the newly created overland flow path that occurs to the north of the river that would cross the railway line in event above the 1% AEP. Due to changes in flowpaths, 6 properties will experience slightly higher flood levels in the 1% AEP event, though the average increase is only 7cm and the maximum increase is 14cm. Reduced overland flow also means that some 46 properties will experience reduced flood level of up to 68cm.

This option significantly reduces flood affectation and damages for all events up to and including the 0.2% AEP (500yr ARI) in the Muscle Creek area by reducing an overland flow path that currently floods 17 properties in the 5% AEP (20yr ARI) event (refer **Table 6-9**). There is a \$130,500 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$1.9 Million. The cost of constructing this mitigation option is \$1.1 Million which is quite low considering the potential benefit (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 1.7. Since the B/C ratio is significantly above one, this option should be considered for further investigation and potential implementation.

Further raising the Golf Course Levee (bund) could be considered to protect it against events up to the 0.2% AEP (500yr ARI), however the added cost may not increase the B/C ratio as the AAD is weighted to events that occur more frequently. Also as the overall channel capacity is limited, overland flows at other locations will occur and the Bell Street Bridge overtopped in the 0.5% AEP (200yr ARI) event so increased levee heights will not prevent road closure unless the Bell Street Bridge is also upgraded.

Table 6-9: Change in Property Affection and Damages for Mitigation Measure – MC2
MC2 – Muswellbrook Golf Course Flood Bund Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	0	-\$3,261
0.2% / 500yr	13	8	\$1,532,417
0.5% / 200yr	22	21	\$1,833,237
1% / 100yr	31	31	\$2,036,082
2% / 50yr	22	54	\$1,824,305
5% / 20yr	17	44	\$1,269,328
10% / 10yr	0	15	\$224,088

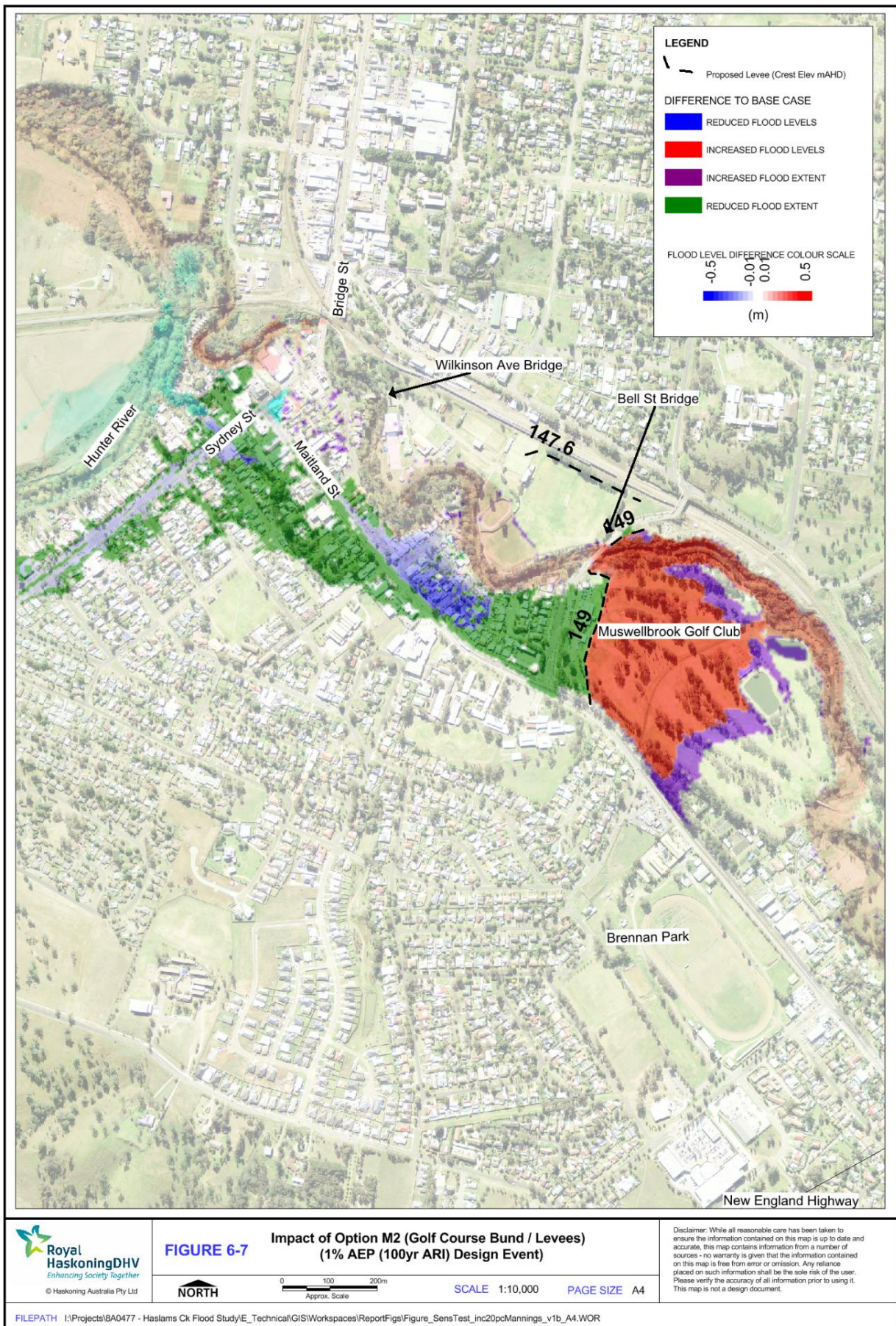
Reduction in Annual Average Damages (AAD)	\$130,490
Reduced Damages (Over 50 years)	\$1,931,342
Cost of Mitigation Option	\$1,100,000
Benefit/Cost	1.76
Reduction in Damages (%)	12%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-10: Change in (1% AEP) Property Affection and Flood Levels Option – MC2

MC2 - Muswellbrook Golf Course Flood Bund		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	31	31
newly flooded / wet	0	0
net change	31	31
No. locations with increased flood depth		6
Av. increase (m)		0.07
max increase (m)		0.14
No. locations with reduced flood depth		46
Av. decrease (m)		0.36
max decrease (m)		0.68

Notes: Reduction in the (gross) number of properties is compared to the base case.



Social and Environmental Impacts

Construction of a flood levee / bund adjacent to the Muswellbrook Golf Club appears to be a cost effective measure that is able to significantly reduce flood losses to the community in events up to and including the 1% AEP (100yr ARI) producing a significant overall reduction in AAD. The inclusion of the railway levee is also able to reduce flood damages for both 0.5% AEP (200yr ARI and 0.2% AEP (500yr ARI).

The construction of this option is entirely on recreation land though it may have a minor impact on the operation of the Golf Course and reduce the visual amenity of the Golf Club. Environmental impacts in the form of minor vegetation loss and general construction impacts are considered relatively minor.

Implementation of this option results in Bell Street being available as an important transport link in events up to and including the 1% AEP. Protection significantly above this level would require raising the height of the bridge which is likely to be prohibitively expensive. After implementation of MC2 the road would only be closed at the peak of the flood so would be closed for less than 4hrs.

6.4.6 MC3 – Muscle Creek Channel Vegetation Management

Overview

Improvements to riparian vegetation in Muscle Creek are proposed in the Draft Muswellbrook Urban Riparian Landcare Master Plan - Muswellbrook Shire Council Master Plan Report (GHD Woodhead, 2017). These improvements currently only target two relatively small areas (either side of the Wilkinson Avenue Bridge) and have been included in the baseline model by assuming a lower bank roughness than would otherwise be applicable (i.e. a reduction from Mannings “n” of 0.045 to 0.035). Option MC3 investigated the extension of vegetation management further upstream.

By removing this layer of near bank vegetation the hydraulic roughness is significantly reduced which will result in lower flood levels. To achieve this situation the existing vegetation would need to be removed/managed. To prevent thick vegetation from being re-established ongoing management would be required.

The areas of vegetation removal are presented in **Figure 6-8**. It was assumed that all invasive vegetation along the length of the Muscle Creek was removed. A total of 10 hectares of vegetation removal was modelled in this scenario. The flood model was updated to include the change in hydraulic roughness and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-8: Outline Details of MC3 – Muscle Creek Channel Vegetation Management Option

NB: 1) The above shows areas of in-channel bank vegetation along Muscle Creek

2) A total of 10 hectares of vegetation management/removal was modelled in this scenario.

Results

This option is able to slightly reduce the number and depth to which properties are flooded along the Muscle Creek as presented in **Table 6-11**. **Table 6-12** shows that for the 1% AEP (i.e. 100yr ARI) design event there is net a reduction in 7 occurrences of above floor flooding and a net reduction of 13 properties experiencing yard or underfloor flooding. Because the option is able to nearly globally reduce flood levels, in the 1% AEP event, some 69 properties will experience reduced flood levels of an average of 8cm though reductions of up to 18cm are predicted. This option is not predicted to produce any negative flood impacts in any events.

This option has negligible effect on the PMF as most of the flow is out of bank during this extreme flood event.

While this option does not significantly reduce property inundation it still reduces the depth of flooding which produces a reasonable reduction in overall flood damages for all events as presented in **Table 6-11**. There is a \$62,300 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$0.92 Million. However, the cost of initial clearing and ongoing maintenance is estimated to be \$1.4 Million (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 0.66. Since the

B/C ratio is less than one, this option is unlikely to be recommended for implementation or further investigation. However, it is possible that a cheaper more targeted vegetation management option that focusses on areas adjacent to key hydraulic controls (such as the Bell Street Bridge) may produce a B/C ratio above 1.

Table 6-11: Change in Property Affection and Damages for Mitigation Measure – MC3
Muscle Creek Channel Vegetation Management Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	1	0	\$14,651
0.2% / 500yr	3	13	\$598,782
0.5% / 200yr	2	4	\$592,799
1% / 100yr	7	13	\$535,989
2% / 50yr	6	9	\$476,084
5% / 20yr	14	16	\$702,688
10% / 10yr	0	15	\$224,088
Reduction in Annual Average Damages (AAD)			\$62,335
Reduced Damages (Over 50 years)			\$922,611
Cost of Mitigation Option			\$1,400,000
Benefit/Cost			0.66
Reduction in Damages (%)			6%

Notes: Reduction in the (net) number of properties is compared to the base case.

Table 6-12: Change in (1% AEP) Property Affection and Flood Levels Option – MC3

MC3 - Muscle Creek Channel Vegetation Management Option		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	7	13
newly flooded / wet	0	0
net change	7	13
No. locations with increased flood depth		0
Av. increase (m)		n/a
max increase (m)		0.00
No. locations with reduced flood depth		69
Av. decrease (m)		0.08

max decrease (m)

0.18

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

Removal of channel vegetation could result in a significant loss of potential wildlife habitat and would cause a significant loss in local flora and fauna. However, a more targeted vegetation management option that reduces under storey non-native invasive vegetation may result in reduced hydraulic roughness and positive flood impact. The loss of vegetation may also result in increased bank erosion and cause increased channel mobility. This option is also unlikely to be considered by the community as an effective response to the existing flood risk posed by Muscle Creek and the potential for frequent damages that result from floodwater breaking out of the channel at Muswellbrook Gold Course. This option also requires significant resources as it needs to be continuously implemented throughout the year.

6.4.7 D1 – Denman Blockage / Maintenance Policy (unblock 2 Virginia St culverts)

Overview

The occurrence of above floor flooding in Denman for events below the PMF appears to be concentrated around the two culverts under Virginia Street either side of the intersection with Rosemount Road (refer **Figure 4-7**). The location of the Virginia Street culverts is presented **Figure 6-9**. The northern culvert which comprises 5 x 0.75 m wide x 1.05 m high box culverts which were set to 40% blockage based on a site visit in 2016. The southern culvert which comprises 2 x 1.8 m wide x 0.9 m high box culverts which were set to 25% blockage based on a site visit in 2016. In order to increase culvert conveyance to reduce the occurrence of breakouts and subsequent overland flows clearing and ongoing annual maintenance may reduce the impact of flooding in Denman.

The flood model was updated to include the changes to the pipe network (i.e. blockage factor) and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-9: Outline Details of D1 – Denman Blockage / Maintenance Policy Option

- NB: 1) northern culvert which comprises 5 x 0.75 m wide x 1.05 m high box culverts (base case 40% blockage)
 2) southern culvert which comprises 2 x 1.8 m wide x 0.9 m high box culverts (base case 25% blockage)
 3) For this scenario blockage is reduced to 0 through initial clearing and annual maintenance

Results

This option is able to slightly reduce the number of flood affected properties in Denman as presented in **Table 6-13**. **Table 6-14** shows that for the 1% AEP (i.e. 100yr ARI) design event there is net a reduction in 2 (out of 7) occurrences of above floor flooding and a net reduction of 2 properties experiencing yard or underfloor flooding. Due to changes in flow conveyance, this option will slightly increase flood levels at 7 properties (for the 1% AEP), though the increase is less than 1cm and is considered insignificant. Reduced breakouts and overland flow also mean that some 35 properties will experience reduced flood level of up to 37cm in the 1% AEP event.

This option has negligible effect on the PMF damages which are governed by the Hunter River flood mechanism.

While this option only reduces the occurrence of above floor flooding for two premises and has a negligible impact on study wide flood damages, due to the low cost of implementation (as presented in **Table 6-13**), it is able to produce a B/C ratio above 1. There is a \$4,180 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$61,800. However, as the cost of the maintenance is expected to only be \$2,500 which using a discount rate of 5% results in a 50 year cost of only \$50,000 (a cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is 1.24. Since the B/C ratio is greater than one, this option is recommended for implementation.

Table 6-13: Change in Property Affection and Damages for Mitigation Measure – D1
Denman Blockage / Maintenance Policy Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	0	\$0
0.2% / 500yr	0	1	\$121,787
0.5% / 200yr	2	1	\$47,363
1% / 100yr	2	2	\$136,887
2% / 50yr	2	2	\$132,940
5% / 20yr	0	0	\$0
10% / 10yr	0	0	\$0
Reduction in Annual Average Damages (AAD)			\$4,179
Reduced Damages (Over 50 years)			\$61,849
Cost of Mitigation Option			\$50,000
Benefit/Cost			1.24
Reduction in Damages (%)			0.37%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-14: Change in (1% AEP) Property Affection and Flood Levels Option – D1

D1 – Denman Blockage / Maintenance Policy		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	2	2
newly flooded / wet	0	0
net change	2	2
No. locations with increased flood depth		7
Av. increase (m)		0.00
max increase (m)		0.00
No. locations with reduced flood depth		35
Av. decrease (m)		0.03
max decrease (m)		0.37

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

As this option reduces the occurrence of flooding and property inundation it is associated with a positive social outcome. This option is considered to have negligible adverse environmental impact. The costs associated with this option could be considered as part of Councils annual asset management program, the option therefore has no up-front capital costs, just an ongoing annual maintenance costs.

6.4.8 D2 - Upgrade to Virginia St Culvert (north)

Overview

The occurrence of above floor flooding in Denman for events below the PMF appears to be concentrated around the two culverts under Virginia Street either side of the intersection with Rosemount Road (refer **Figure 4-7**). The location of the Virginia Street culverts is presented **Figure 6-10**. The northern culvert which comprises 5 x 0.75 m wide x 1.05 m high box culverts which were set to 40% blockage based on a site visit in 2016. The southern culvert which comprises 2 x 1.8 m wide x 0.9 m high box culverts which were set to 25% blockage based on a site visit in 2016. In order to increase culvert conveyance to reduce the occurrence of breakouts and subsequent overland flows an upgrade of the northern culvert to 5 x 1.2 m wide by 1.2 m high box culverts was investigated.

The flood model was updated to include the changes to the pipe network (i.e. culvert upgrade) and a suite of design runs was simulated to determine the impact of this mitigation option on flood behaviour and property inundation and damages.



Figure 6-10: Outline Details of D2 - Upgrade to Virginia St Culvert (north) Option

- NB: 1) northern culvert which currently comprises 5 x 0.75 m wide x 1.05 m high box culverts (base case 40% blockage). In this scenario it would be upgraded to 5 x 1.2 m wide x 1.2 m high box culverts
 2) southern culvert which comprises 2 x 1.8 m wide x 0.9 m high box culverts (base case 25% blockage)
 3) For this scenario blockage is also reduced to 0 through initial clearing and annual maintenance

Results

This option is able to slightly reduce the number of flood affected properties in Denman as presented in **Table 6-15**. **Table 6-16** shows that for the 1% AEP (i.e. 100yr ARI) design event there is net a reduction in 4 (out of 7) occurrences of above floor flooding and a net reduction of 3 properties experiencing yard or underfloor flooding. Due to changes in flow conveyance, this option will slightly increase flood levels at 8 properties (for the 1% AEP), though the increase is less than 1cm so should be considered insignificant. Reduced breakouts and overland flow also mean that some 34 properties will experience reduced flood level of up to 37cm in the 1% AEP event.

This option has negligible effect on the PMF damages which are governed by the Hunter River flood mechanism.

While this option only reduces the occurrence of above floor flooding for four premises the actual reduction in damages compared to Option D1 (culvert maintenance) is similar, due to the higher cost of implementation (as presented in **Table 6-15**) it produced a B/C ratio well below 1. There is a \$4,425 reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$65,500. However, as the capital cost of the project is quite high (~\$430,000 if undertaken by an external contractor and including a 50% contingency) (a full cost breakdown for this measure can be found in **Appendix B**). The calculated benefit/cost (B/C) ratio for this option is only 0.15. Since the B/C ratio is significantly less than one, this option is not recommended for implementation.

Table 6-15: Change in Property Affection and Damages for Mitigation Measure – D2
Upgrade to Virginia St Culvert (north) Option

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	0	0	\$0
0.2% / 500yr	2	1	\$121,787
0.5% / 200yr	2	1	\$88,797
1% / 100yr	4	3	\$147,587
2% / 50yr	2	2	\$132,940
5% / 20yr	0	0	\$0
10% / 10yr	0	0	\$0
Reduction in Annual Average Damages (AAD)			\$4,425
Reduced Damages (Over 50 years)			\$65,490
Cost of Mitigation Option			\$430,000
Benefit/Cost			0.15
Reduction in Damages (%)			0.39%

Notes: Reduction in the (net) number of properties is compared to the base case.
A negative reduction means damages have increased for this event

Table 6-16: Change in (1% AEP) Property Affection and Flood Levels Option – D2

D1 – Denman Blockage / Maintenance Policy		
	No. Properties Above Floor	No. Properties Yard or Under Flood Flooded
no longer flooded / dry	4	3
newly flooded / wet	0	0
net change	4	3
No. locations with increased flood depth		8
Av. increase (m)		0.00
max increase (m)		0.00
No. locations with reduced flood depth		34
Av. decrease (m)		0.03
max decrease (m)		0.37

Notes: Reduction in the (gross) number of properties is compared to the base case.

Social and Environmental Impacts

As this option reduces the occurrence of flooding and property inundation it is associated with a positive social outcome. This option is considered to have negligible adverse environmental impact. Short term social impacts would be limited to the construction phase.

Property modification measures

6.4.9 P1 - Voluntary House Raising and Voluntary Purchase (properties below 1% AEP)

Description & Details

Voluntary House Raising (VHR) has been widely used in NSW as a means of reducing above floor flood inundation. The application of VHR is limited since it is not suitable for all building types (primarily only for single storey non-brick buildings on piers). VHR, where suitable, is cost effective because it does not require significant quantities of new material and does not “sterilise” land. It should be noted that VHR is unlikely to be approved in high hazard areas and can cause evacuation problems.

Voluntary Purchase (VP) refers to the acquisition and demolition of severely flood affected residential properties which pose a significant risk to life during flood events. Typically, these properties are frequently inundated by high hazard flows. These properties are generally removed from the floodplain and rezoned to a high hazard flood compatible use, such as open public space. The removal of these properties may also restore the hydraulic capacity of the floodplain if the properties are located in a “floodway”.

The current analysis has been undertaken assuming all properties that are slab on ground properties are eligible for VP (i.e. it does not currently consider flood hazard). The analysis also

considers all properties on piers are candidates for VHR and does not consider that some properties on piers may be unsuitable for raising (i.e. if they have a brick chimney).

It should be noted that only residential properties have been considered for VHR or VP. It is assumed that VHR properties are raised 0.5 m above the 1% AEP (100yr ARI) design level, though will still occur damages due to yard and under floor flooding. Properties assumed for VP were assumed to incur no damages. Double storey (DS) properties were considered unsuitable for VHR or VP.

It was assumed that VHR properties would incur on average a cost of \$50,000, while the cost of VP was assumed to be \$300,000 which is based on the median property price as reported by CoreLogic which as at May 2018 was \$295,000 and an allowance of \$5,000 for legal/conveyancing costs.

Results

The analysis found that for the 1% AEP (100yr ARI) protection standard, 139 properties are potentially suitable for VHR, while a further 22 which cannot be raised may be suitable for VP. By targeting the properties that are frequently flooded (and hence result in a high contribution to AAD), a significant reduction in flood damages is achieved as presented in **Table 6-17**. There is a 46% reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$7.66 Million. The cost of this mitigation option is \$13.55 Million. The calculated benefit/cost (B/C) ratio for this option is 0.57. Given that the B/C ratio is less than one, this option would not be recommended for implementation or further investigation.

Table 6-17: Change in Property Affection and Damages for VHR/VP (1% AEP)
1% AEP - VHR 139 Properties, VP 22 Properties, DS 31 Properties

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	22	21	\$5,341,598
0.2% / 500yr	146	22	\$13,527,749
0.5% / 200yr	161	22	\$13,497,237
1% / 100yr	161	22	\$12,151,040
2% / 50yr	105	21	\$9,919,973
5% / 20yr	18	11	\$2,793,397
10% / 10yr	0	0	\$0
Reduction in Annual Average Damages (AAD)			\$517,800
Reduced Damages (Over 50 years)			\$7,663,821
Cost of Mitigation Option			\$13,550,000
Benefit/Cost			0.57
Reduction in Damages (%)			46%

Notes: Reduction in the (net) number of properties is compared to the base case.

Social and Environmental Impacts

As this option reduces the occurrence of above floor property inundation and associated economic and health related impacts it is associated with a positive social outcome. VHR reduces social disruption as residents are not required to be relocated. However, VHR may encourage residents to stay in their homes during a flood which may lead to evacuation issues or potential fatalities in the case of extreme floods significantly higher than the 1% AEP. VHR has a relatively low environmental impact as it makes good use of existing resources.

VP is more socially disruptive and unless flood compatible uses (i.e. community meeting areas) are available for properties the demolition of existing properties has significant environmental costs.

6.4.10 P2 - Voluntary House Raising and Voluntary Purchase (properties below 2% AEP)

Description & Details

This option is similar to that described above in Section 6.4.9, however, instead of raising properties inundated during the 1% AEP only properties inundated in the 2% AEP (50yr ARI) would be considered.

Again it was assumed that VHR properties would incur on average a cost of \$50,000, while the cost of VP was assumed to be \$300,000 which is based on the median property price as reported by CoreLogic which as at May 2018 was \$295,000 and an allowance of \$5,000 for legal/conveyancing costs.

Results

The analysis found that for the 2% AEP (50yr ARI) protection standard, 93 properties are potentially suitable for VHR, while a further 12 which cannot be raised may be suitable for VP. By targeting the properties that are frequently flooded (and hence result in a high contribution to AAD), a significant reduction in flood damages is achieved as presented in **Table 6-18**. There is a 35% reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$5.81 Million. The cost of this mitigation option is \$8.25 Million. The calculated benefit/cost (B/C) ratio for this option is 0.7. Given that the B/C ratio is less than one, this option would not be recommended for implementation or further investigation.

Table 6-18: Change in Property Affection and Damages for VHR/VP (2% AEP)
2% AEP - VHR 93 Properties, VP 12 Properties, DS 28 Properties

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	12	12	\$2,955,647
0.2% / 500yr	76	12	\$7,807,325
0.5% / 200yr	94	12	\$8,426,498
1% / 100yr	105	12	\$8,587,711
2% / 50yr	105	12	\$7,502,247
5% / 20yr	18	9	\$2,512,259
10% / 10yr	0	3	\$291,812

Reduction in Annual Average Damages (AAD)	\$392,955
Reduced Damages (Over 50 years)	\$5,816,030
Cost of Mitigation Option	\$8,250,000
Benefit/Cost	0.70
Reduction in Damages (%)	35%

Notes: Reduction in the (net) number of properties is compared to the base case.

Social and Environmental Impacts

As this option reduces the occurrence of above floor property inundation and associated economic and health related impacts it is associated with a positive social outcome. VHR reduces social disruption as residents are not required to be relocated. However, VHR may encourage residents to stay in their homes during a flood which may lead to evacuation issues or potential fatalities in the case of extreme floods significantly higher than the 1% AEP. VHR has a relatively low environmental impact as it makes good use of existing resources.

VP is more socially disruptive and unless flood compatible uses (i.e. community meeting areas) are available for properties the demolition of existing properties has significant environmental costs.

6.4.11 P3 - Voluntary House Raising and Voluntary Purchase (properties below 5% AEP)

Description & Details

This option is similar to that described above in Section 6.4.9, however, instead of raising properties inundated during the 1% AEP only properties inundated in the 5% AEP (20yr ARI) would be considered.

Again it was assumed that VHR properties would incur on average a cost of \$50,000, while the cost of VP was assumed to be \$300,000 which is based on the median property price as reported by CoreLogic which as at May 2018 was \$295,000 and an allowance of \$5,000 for legal/conveyancing costs.

Results

The analysis found that for the 5% AEP (20yr ARI) protection standard, 12 properties are potentially suitable for VHR, while a further 6 which cannot be raised may be suitable for VP. By targeting the properties that are frequently flooded (and hence result in a high contribution to AAD), a significant reduction in flood damages is achieved as presented in **Table 6-19**. There is a 12% reduction in AAD, which, over a 50 year period, is expected to reduce flood related damages by \$2.0 Million. The cost of this mitigation option is \$2.40 Million. The calculated benefit/cost (B/C) ratio for this option is 0.84. Given that the B/C ratio is less than one, this option would not be recommended for implementation or further investigation. However, it is possible that by excluding the VP properties from this analysis and considering VHR only, a B/C ratio of > 1 may occur.

Table 6-19: Change in Property Affection and Damages for VHR/VP (5% AEP)

5% AEP - VHR 12 Properties, VP 6 Properties, DS 12 Properties

Event	No. Properties No Longer Flooded Over Floor	No. Properties No Longer Yard or Under Floor Flooded	Reduction in Damages for Event
PMF	6	6	\$1,340,164
0.2% / 500yr	14	6	\$1,694,268
0.5% / 200yr	15	6	\$1,675,293
1% / 100yr	16	6	\$1,714,390
2% / 50yr	18	6	\$1,728,169
5% / 20yr	18	6	\$1,447,186
10% / 10yr	0	3	\$238,812
Reduction in Annual Average Damages (AAD)			\$135,481
Reduced Damages (Over 50 years)			\$2,005,227
Cost of Mitigation Option			\$2,400,000
Benefit/Cost			0.84
Reduction in Damages (%)			12%

Notes: Reduction in the (net) number of properties is compared to the base case.

Social and Environmental Impacts

As this option reduces the occurrence of above floor property inundation and associated economic and health related impacts it is associated with a positive social outcome. VHR reduces social disruption as residents are not required to be relocated. However, VHR may encourage residents to stay in their homes during a flood which may lead to evacuation issues or potential fatalities in the case of extreme floods significantly higher than the 1% AEP. VHR has a relatively low environmental impact as it makes good use of existing resources.

VP is more socially disruptive and unless flood compatible uses (i.e. community meeting areas) are available for properties the demolition of existing properties has significant environmental costs.

6.4.12 Summary of Damages for Mitigation Measures

A summary of flood damages and benefit / cost (B/C) ratios for the base case (do nothing) and mitigation options is presented in **Table 6-20**.

Table 6-20: Summary of Damages and B/C Ratios for a Range of Mitigation Measures

Option	AAD	NPV of Damage	Cost Of Option	Option Benefit Relative to Base Case	Benefit/Cost Relative to Base Case	Reduction in Damages (%)
Base Case for Comparison	\$1,121,152	\$16,593,882	n/a	n/a	n/a	n/a
HRS1 - Backwater Levee Option	\$1,022,901	\$15,139,704	\$2,250,000	\$1,454,178	0.65	9%
HRS2 - Sydney Street Levee Option	\$941,013	\$13,927,697	\$3,500,000	\$2,666,185	0.76	16%
HRS3 - Channel Vegetation Removal	\$793,628	\$11,746,290	\$8,000,000	\$4,847,592	0.61	29%
MC1 - Enhance creek bank adjacent to golf course	\$997,554	\$14,764,542	\$840,000	\$1,829,339	2.18	11%
MC2 - Golf course flood bund	\$990,662	\$14,662,540	\$1,100,000	\$1,931,342	1.76	12%
MC3 - Channel vegetation management	\$1,058,816	\$15,671,270	\$1,400,000	\$922,611	0.66	6%
D1 - blockage / maintenance policy (unblock 2 Virginia St culverts)	\$1,116,973	\$16,532,033	\$50,000	\$61,849	1.24	0.37%
D2 - Upgrade to Virginia St culvert (north)	\$1,116,727	\$16,528,392	\$430,000	\$65,490	0.15	0.39%
P1 - VP/VHR below 1% AEP only	\$603,352	\$8,930,061	\$13,550,000	\$7,663,821	0.57	46%
P2 - VP/VHR below 2% AEP only	\$728,197	\$10,777,852	\$8,250,000	\$5,816,030	0.70	35%
P3 - VP/VHR below 5% AEP only	\$985,670	\$14,588,655	\$2,400,000	\$2,005,227	0.84	12%

6.4.13 Summary of Potential Mitigation Measures

A summary of all the mitigation measures considered in the FRMS is presented in **Table 6-21**.

Table 6-21: Risk Management Option – Assessment Summary and Analysis

Measure	Description	Priority	Benefit	Comments & Concerns	Responsibility for Implementation, Costs and Funding
FLOOD MODIFICATION MEASURES					
HRS1 – Muswellbrook Backwater Levee – Section 6.4.1	Option HRS1 investigated construction of a Levee to prevent backwater flooding outflanking the existing Muswellbrook Levee. A large flapped outlet is required to drain Possum Gully Creek.	Low - Medium Effective but costly	B/C = 0.65 Option HRS1 reduces flood damages by \$1.45 Mil and is able to protect 22 properties from above floor flooding and 73 properties from under floor flooding in the 1% AEP event.	Option HRS1 is estimated to cost \$2.25 Million and would require ground works and excavation which would have a negative environmental effect. However, as the levee is at the rear of properties the disruption is minimised. A minor allowance for ongoing maintenance would be required.	Council would be responsible for costs and implementation of this option. Limited funding may be available through the NSW Floodplain Management Program or other Federal Grants Programs.
HRS2 - Sydney Street Levee – Section 6.4.2	Option HRS2 investigated construction of an 840m long earth levee parallel to Sydney Street. A 550m long brickwork levee parallel to Maitland Street would also be required. The option requires 4 temporary barriers at each road crossing.	Low - Medium Effective but costly and difficult to implement	B/C = 0.76 Option HRS2 reduces flood damages by \$2.66 Mil and is able to protect 54 properties from above floor flooding and 71 properties from under floor flooding in the 1% AEP event.	Option HRS2 is estimated to cost \$3.5 Million and would require ground works and excavation which would have a negative environmental effect. Also the requirement for levee between properties would require significant negotiation with residents and make ownership, monitoring and maintenance difficult. A minor allowance for ongoing maintenance would be required. The reliance on deployment of temporary flood barrier potentially reduces the effectiveness of this option. This option also adversely affects flood levels and damages for a number of properties outside the protected area.	Council would be responsible for costs and implementation of this option. Limited funding may be available through the NSW Floodplain Management Program or other Federal Grants Programs.
HRS3 - Channel Vegetation Removal – Section 6.4.3	Option HRS3 investigated clearing the vegetation from a 40km reach of the Hunter River Channel. .	Very Low Only moderately effective and very costly with negative environmental impacts	B/C = 0.61 Option HRS3 reduces flood damages by \$4.85 Mil and is able to protect 66 properties from above floor flooding and 53 properties from under floor flooding in the 1% AEP event. The option typically reduces flood levels by 0.3m. .	Option HRS3 is estimated to cost \$8.0 Million. This option This action is contrary to recent research in the Hunter and current flood mitigation activities in the Hunter which are encouraging the maintenance and increase of in-channel woody vegetation and may also increase flooding downstream of the study area. Significant vegetation removal would result in a significant loss of wildlife habitat and could also result in stream erosion and channel migration. There is likely to be significant opposition from the community and it could be difficult to obtain approval from land management authorities. Ongoing vegetation removal and maintenance would be required.	Council would be responsible for costs and implementation of Option HRS3. Limited funding may be available through the NSW Floodplain Management Program.



Measure	Description	Priority	Benefit	Comments & Concerns	Responsibility for Implementation, Costs and Funding
MC1 - Enhance creek bank adjacent to golf course – Section 6.4.4	Option MC1 investigated the use of 3 small levees/bunds on Muscle Creek to prevent overland flows cutting Bell Street (a vital emergency access route) and causing significant flood damages to residents. A fourth levee could further reduce flood damages north of the railway.	Medium - High Very Effective and relatively low cost, highest B/C	B/C = 2.18 Option MC1 reduces flood damages by \$1.83 Mil and is able to protect 31 properties from above floor flooding and 28 properties from under floor flooding in the 1% AEP event. MC1 also means that Bell St is accessible in the 1% AEP (currently flooded in the 5% AEP).	Option MC1 is estimated to cost \$0.84 Million and would require ground works and minor excavation which would have a negative environmental effect. However, as the levee is on public land disruption and objections should be minimal. A flapped culvert would be required to ensure adequate drainage of the golf course. A staged approach may be appropriate for this option. A minor allowance for ongoing maintenance would be required. Option MC2 provides slightly lower AAD due to provision of flood storage area. Land ownership and access for construction and maintenance would need to be considered.	Council would be responsible for costs and implementation of this option. Limited funding may be available through the NSW Floodplain Management Program or other Federal Grants Programs.
MC2 - Golf course flood bund – Section 6.4.5	Option MC2 investigated the use of a large levee/bund adjacent to Muswellbrook Golf Club and a small levee/bund on the north bank of Muscle Creek to prevent overland flows cutting Bell Street (a vital emergency access route) and causing significant flood damages to residents. An additional levee could further reduce flood damages north of the railway.	Medium - High Very Effective and relatively low cost, 2 nd highest B/C	B/C = 1.76 Option MC2 reduces flood damages by \$1.93 Mil and is able to protect 31 properties from above floor flooding and 31 properties from under floor flooding in the 1% AEP event. MC2 also means that Bell St is accessible in the 1% AEP (currently flooded in the 5% AEP).	Option MC2 is estimated to cost \$1.1 Million and would require ground works and minor excavation which would have a negative environmental effect. However, as the larger levee is on the Golf Course there is the potential for objections from Golf Course owners and users. MC2 provides a similar level of protection as MC1 for events up to the 1% AEP, however is able to provide a greater degree of benefit in more extreme events. A staged approach may be appropriate for this option to reduce upfront costs. A minor allowance for ongoing maintenance would be required. Land ownership and access for construction and maintenance would need to be considered.	Council would be responsible for costs and implementation of this option. Limited funding may be available through the NSW Floodplain Management Program or other Federal Grants Programs.
MC3 - Channel vegetation management – Section 6.4.6	Option MC3 investigated the management and clearing of ~10 Hectares of vegetation from a 3.5km reach of Muscle Creek.	Low Only moderately effective and very costly with negative environmental impacts	B/C = 0.66 Option MC3 reduces flood damages by \$0.92 Mil and is able to protect 7 properties from above floor flooding and 13 properties from under floor flooding in the 1% AEP event. The option typically reduces flood levels by 0.1m.	Option MC3 is estimated to cost \$1.4 Million over 50 years. Significant vegetation removal would result in a significant loss of wildlife habitat and could also result in stream erosion and channel migration. However, this option includes re-vegetation with native species so long term habitat loss is reduced. Because this option is mainly targeting non-native invasive species there is likely to be less opposition from the community and more support from land management authorities. Ongoing vegetation removal and maintenance would be required. This option is not able to provide the required improvements to Bell Street flood immunity.	Council would be responsible for costs and implementation of Option MC3. Limited funding may be available through the NSW Floodplain Management Program.
D1 - Blockage / maintenance	Option D1 investigated the clearance and ongoing	Medium - High	B/C = 1.24 Option D1 reduces flood damages	Option D1 is estimated to cost \$50,000 over 50 years including an allowance for ongoing maintenance. This option has low	Council would be responsible for costs and implementation of this option. The upfront



Measure	Description	Priority	Benefit	Comments & Concerns	Responsibility for Implementation, Costs and Funding
policy to unblock 2 Virginia St (Denman) culverts – Section 6.4.7	maintenance of two culverts under Virginia Street (Denman) that are currently 45% and 20% blocked. Removal of sediment and debris	Effective and very low cost, B/C > 1	by \$61,850 and is able to protect 2 properties from above floor flooding and 2 properties from under floor flooding in the 1% AEP event.	environmental impact and makes use of existing assets though increases the workload for Council staff / works teams.	and ongoing costs of this option are relatively minor. It is unlikely that this option would receive funding from the NSW Floodplain Management Program or other Federal Grants Programs.
D2 - Upgrade to Virginia St (Denman) culvert (north) - Section 6.4.8	Option D2 investigated upgrading the existing 5 x 0.75 m wide x 1.05 m high box culverts in Virginia Street (Denman) with a 5 x 1.2 m wide x 1.2 m high box culvert and the clearance and ongoing maintenance of both culverts.	Low Effective but high cost.	B/C = 0.15 Option D2 reduces flood damages by \$65,500 and is able to protect 4 properties from above floor flooding and 3 properties from under floor flooding in the 1% AEP event.	Option D2 is estimated to cost \$430,000 over 50 years including an allowance for ongoing maintenance. This option has relatively low environmental impact though does require some construction impacts and also the replacing an existing asset. Because this only provides protection to a small number of properties it is associated with a relatively low B/C ratio. If Council undertook the works there is potential to reduce the overall option costs.	Council would be responsible for costs and implementation of this option. Limited funding may be available through the NSW Floodplain Management Program or other Federal Grants Programs.
PROPERTY MODIFICATION MEASURES					
P1 - Voluntary House Raising and Voluntary Purchase (properties below 1% AEP) - Section 6.4.9	Option P1 investigated VHR for 139 properties and VP for 22 properties that are currently experience above floor flooding in the 1% AEP flood event.	Low - Medium	B/C = 0.57 Option P1 reduces flood damages by \$7.66 Mil and is able to protect 161 properties from above floor flooding in the 1% AEP event.	The VHR of 139 properties and VP of 22 properties is estimated to cost \$13.55 Mil. Further analysis is recommended to identify which of the VP properties are in a high risk area and should be prioritised. Further analysis should also be undertaken to exclude properties adjacent to Muscle Creek which can be protected by option MC1 or MC2. Options for only undertaking VHR and VP for more frequently flooded properties are provided in P2 and P3 and have a more favourable B/C ratio.	Recommendation for a Voluntary House Raising Feasibility Assessment to be conducted. 2:1 Funding may be available through the NSW Floodplain Management Program, with the resident liable for paying 1/3 the cost of raising. Recommendation for a Voluntary Purchase Feasibility Assessment to be conducted. 2:1 funding may be available through the NSW Floodplain Management Program, with Council liable for paying 1/3 the cost of the purchased property.
P2 - Voluntary House Raising and Voluntary Purchase (properties below 2% AEP) - Section 6.4.10	Option P2 investigated VHR for 93 properties and VP for 12 properties that are currently experience above floor flooding in the 2% AEP flood event.	Low - Medium	B/C = 0.70 Option P2 reduces flood damages by \$5.82 Mil and is able to protect 105 properties from above floor flooding in the 1% AEP event.	The VHR of 93 properties and VP of 12 properties is estimated to cost \$8.25 Mil. Further analysis is recommended to identify which of the VP properties are in a high risk area and should be prioritised. Further analysis should also be undertaken to exclude properties adjacent to Muscle Creek which can be protected by option MC1 or MC2. Options for only undertaking VHR and VP for more frequently flooded properties are provided in P3 and have a more favourable B/C ratio.	Recommendation for a Voluntary House Raising Feasibility Assessment to be conducted. 2:1 Funding may be available through the NSW Floodplain Management Program, with the resident liable for paying 1/3 the cost of raising. Recommendation for a Voluntary Purchase Feasibility Assessment to be conducted. 2:1 funding may be available through the NSW Floodplain Management Program, with



Measure	Description	Priority	Benefit	Comments & Concerns	Responsibility for Implementation, Costs and Funding
					Council liable for paying 1/3 the cost of the purchased property.
P3 - Voluntary House Raising and Voluntary Purchase (properties below 5% AEP) - Section 6.4.11	Option P2 investigated VHR for 12 properties and VP for 6 properties that are currently experience above floor flooding in the 5% AEP flood event.	Low - Medium	B/C = 0.84 Option P3 reduces flood damages by \$2.02 Mil and is able to protect 18 properties from above floor flooding in the 1% AEP event.	The VHR of 12 properties and VP of 6 properties is estimated to cost \$2.40 Mil. Further analysis is recommended to identify which of the VP properties are in a high risk area and should be prioritised. Further analysis should also be undertaken to exclude properties adjacent to Muscle Creek which can be protected by option MC1 or MC2. Options for only undertaking VHR only may produce a more favourable B/C ratio.	Recommendation for a Voluntary House Raising Feasibility Assessment to be conducted. 2:1 Funding may be available through the NSW Floodplain Management Program, with the resident liable for paying 1/3 the cost of raising. Recommendation for a Voluntary Purchase Feasibility Assessment to be conducted. 2:1 funding may be available through the NSW Floodplain Management Program, with Council liable for paying 1/3 the cost of the purchased property.
RESPONSE MODIFICATION MEASURES					
FW1 - Flood Warning System (see Section 7)	Option FW1 investigated the development of a flood warning system for Muscle Creek.	Medium - High	If MC1 or MC2 are not implemented with a 2 to 5 year timeframe, a flood warning system is recommended to reduce risk to life from rapidly rising floodwaters that sweep through residential areas of Muswellbrook to the south of Muscle Creek and can isolate the southern side of town as frequently as the 5% AEP flood event.	A suitable flood warning system for Muswellbrook is estimated to cost \$50,000 to \$100,000. Ongoing annual monitoring costs of ~\$5,000 are likely to be required. A significant benefit of flood warning system is in intangibles including advanced warning of important road closures and the reduced likelihood of flood related loss of life. The method of warning delivery would have to be tailored to the range of residents living on the floodplain.	Following completion of the FRMS&P Council would be able to submit an application for OEH Floodplain Grants for a flood warning system for Muswellbrook. 2:1 funding is likely to be available through the NSW Floodplain Management Program, with Council liable for paying 1/3 the cost of the system.
EM1 - Emergency Management Planning	Effective emergency management planning involves the collaboration of emergency services including the SES and other rescue services to develop a Local Flood Plan.	High	An update to the Local Flood Plan will ensure that informed decisions can be made during a flood event and allow for flood preparedness to increase efficiency and reduce risk to residents and emergency services.	Volume 1 of the SES Flood Plan was produced in March 2013, while Volume 2 and 3 are dated August 2007. It is suggested that the documents are updates to take into account finding of the flood study, particularly new information on Muscle Creek flood issues.	The NSW SES are responsible for developing and maintaining a Local Flood Plan for the study area.
EM2 - Community Flood Education	A community flood education program would allow an increased understanding of	Medium	Increasing flood preparedness and maintain awareness in the community would ensure that	Community members are likely to ignore flood information if too much is given. Communication needs to be direct and concise.	Council in partnership with the SES are responsible for community education. To reduce costs, this information can be



Measure	Description	Priority	Benefit	Comments & Concerns	Responsibility for Implementation, Costs and Funding
	flood risk in Muswellbrook and Denman.		communities are informed and ultimately reduce the damages during a flood event.		incorporated with other information such as in the local paper or with Council Rates.
PLANNING and FPL CONSIDERATIONS					
P4 - Update LEP	Update the LEP ...	High	Council will need to update the LEP to ensure that future develop considers locations with high flood risk.	If an appropriate land use zonings are not adopted, risk to life and increases in flood damages could result.	Council staff time would be required to implement and update to the LEP.

7 Assessment of a Flood Warning System for Muswellbrook

7.1 Response Modification Measures

Flood response measures encompass various means of modifying the response of the population to the flood threat. These measures aim to reduce risk to life and property during a flood event by improving factors such as flood warning and prediction, emergency management planning and community flood education.

7.1.1 Flood Warning Systems

Overview

A flood warning system provides advice on imminent flood events allowing residents to take action to minimise the flood impacts. Typically, flood warning systems integrate factors such as rainfall, river flows and weather forecasts to predict the severity and timing of flooding, then distribute warning messages to agencies such as the SES and to community members where necessary.

Flood warning systems are most effective on large river systems where there is significant warning time providing residents and emergency services with ample time to prepare. There is currently a formal flood warning service for the Hunter River provided by the Bureau of Meteorology (BoM) as discussed below.

On smaller systems such as the Muscle Creek, flood warning systems are typically harder to implement and unless they are based on forecast data, result in less warning time than large systems. However, given the relatively small number of properties and short evacuation distances, a warning system for the Muscle Creek could still be effective in reducing risk to life. Information regarding development of a suitable warning system for Muscle Creek flooding is provided below.

Smaller overland flow catchments, such as the Denman catchment study area, are typically subject to flash flooding from short intense bursts of rainfall and tend to be difficult to provide effective warning time because of their rapid onset. The implementation of a specific flood warning system for the Denman catchment is considered unnecessary given the low risk to life from this flood mechanism. Details of the existing BoM thunderstorm warnings are provided below.

Description of Available BoM Flood Warnings

The Bureau's Flood Warning Service provides:

- Early advice of possible flooding if flood producing rain is expected in the near future.
- A generalised flood warning that flooding is occurring or is expected to occur in a particular region. No information on the severity of flooding or the particular location of the flooding is provided in this instance. These warnings are issued for areas where no specialised warnings systems have been installed. As part of its Severe Weather Warning Service, the Bureau also provides warnings for severe storms that may cause flash flooding. In some areas the Bureau has implemented local monitoring systems (in collaboration with local councils) to assist with flash flood warning.
- Warnings of minor, moderate or major flooding in areas where specialised warning systems have been installed. In these areas, the flood warning message will identify the river valley,

the locations expected to be flooded, the likely severity of the flooding and when it is likely to occur.

- Predictions of expected river height at a town or other important locations and the time that this height will be reached. This particular service is the most useful because it allows local emergency authorities and people in the flood threatened zone to determine the area and likely depth of flooding. This type of warning can only be provided for locations with specialised flood warning systems and for which flood forecasting models are available.

The specialised flood warning system on the Hunter River is described below. While a flash flood warning for the Denman catchment is considered unnecessary, a warning system for Muscle Creek is recommended to reduce risk to life from floodwaters that are capable of producing high hazard conditions between Bell Street and Wilder Street in the 1% AEP (100yr ARI) design storm.

Existing BoM Hunter River Flood Warnings

The Bureau of Meteorology (BoM) currently provides a formal flood warning service for the Hunter River and provides an estimate of peak flood levels. An example of a BoM flood warning for the Williams River (at tributary of the Hunter River) is presented in **Figure 7-1**.

Flood classifications in the form of locally defined flood levels are used in flood warnings to give an indication of the severity of flooding (minor, moderate or major) expected. These levels are used by the NSW State Emergency Service (SES) and the Bureau of Meteorology (BoM) in flood bulletins and flood warnings.

The BoM/SES classifies minor, moderate and major (as defined by BoM below) flooding at two gauges on the Hunter River (Muswellbrook and Denman) as detailed in **Table 7-1**. At the Muswellbrook gauge, BoM provides a 4 hour target warning lead time of 4 hours for a Minor flood event and a 12 hours warning lead time for a Major flood event. At Denman there is an 8 hour lead time for the Major flood event.

Table 7-1: Details of Relevant Flood Warning Gauges

Source: http://www.bom.gov.au/nsw/NSW_SLS_Current.pdf

Gauge Name (Location)	Station Number BoM (DPI)	Minor (m)	Moderate (m)	Major (m)	Gauge Zero (mAHD)
Muswellbrook (under Kayuga Road Bridge)	561005 (210002)	7.2*	8.0	10.0*	136.25
Denman (~50m d/s of Golden Highway Bridge)	561015 (210055)	6.5*	7.9*	9.0*	102.0

* Note this differs from that presented in the SES Flood Plan (2013)

Minor flooding: flooding which causes inconvenience such as closing of minor roads and the submergence of low-level bridges. The lower limit of this class of flooding, on the reference gauge, is the initial flood level at which landholders and/or townspeople begin to be affected in a significant manner that necessitates the issuing of a public flood warning by the BoM.

Moderate flooding: flooding which inundates low-lying areas, requiring removal of stock and/or evacuation of some houses. Main traffic routes may be flooded.

Major flooding: flooding which causes inundation of extensive rural areas, with properties, villages and towns isolated and/or appreciable urban areas flooded.

A comparison of the Major flood level classification to the flood model results (refer Section 4.1) indicates that a Major flood level would have a design magnitude (frequency) of between a 5yr ARI (20% AEP) and 10yr ARI (10% AEP) event at the Muswellbrook gauge. An examination of the floor level database indicates that no properties (on the Hunter River floodplain) are flooded (above floor level) from a Hunter River event below a 10yr ARI (10% AEP) event in the study area. This indicates that the existing BoM flood warnings for the Hunter River provide a suitable warning system for indication of above floor flooding.

Australian Government Bureau of Meteorology, New South Wales

Final Flood Warning for the Williams River

At Dungog

Issued at 1:55 pm EDT on Saturday 18 March 2017
Flood Warning Number: 3

Rainfall has eased since 11:00 am Saturday morning over the Williams river valley, however further rainfall is forecast for the next 24 hours.
The Williams River at Dungog is expected to peak below the minor flood level.
The situation is being closely monitored and warnings and predictions will be issued if necessary.

Williams River:
The Williams River at Dungog is approaching a peak below the minor flood level

Flood Safety Advice:
FloodSafe advice is available at www.ses.nsw.gov.au

For emergency assistance call the SES on telephone number 132 500.
For life threatening emergencies, call 000 immediately.

Next issue:
This is a final warning, no further warnings will be issued for this event.

Latest River Heights:
Williams River at Dungog, 3.77, Steady, 12:45 PM SAT 18/03/17
Williams River at Mill Dam Falls, 1.48, Rising, 01:00 PM SAT 18/03/17
Allyn River at Halton, 2.01, Rising, 01:00 PM SAT 18/03/17
Paterson River at Goswyc Bridge, 1.65, Rising, 01:00 PM SAT 18/03/17

This advice is also available by dialling 1300 659 218. Warning, rainfall and river information are available at www.bom.gov.au/nsw/flood. The latest weather forecast is available at www.bom.gov.au/nsw/forecasts.

Figure 7-1: Example BoM Flood Warning for the Williams River

From <http://weather.news.com.au/warning/?id=IDN36639>

Recommended Development of Muscle Creek Flood Warning System

Development of a flood warning system for Muscle Creek is recommended to reduce risk to life from potentially hazardous flood conditions that are capable of washing people or vehicles into dangerous situations. A flood warning system would also assist in the management of road and bridge closures to ensure emergency access across Muscle Creek. Bell Street is currently overtopped in the 5% AEP (20yr ARI) and Bridge Street is inundated in the 20% AEP (5yr ARI). Advanced warning of road and bridge closures would assist in the pre-deployment of emergency services to the southern suburbs of Muswellbrook. Evacuation of properties on Clifford Street could be especially problematic as the street become a flow path once water crosses Bell Street.

Figure 7-2 shows the flood hazard profiles for the 0.2% AEP (500yr ARI) event, presenting the location of properties exposed to high flood hazards (i.e. $V \times D > 1 \text{ m}^2/\text{s}$). It is also noted that properties located between Bell Street and Wilder Street will be bound by high hazard flood waters that would restrict the safe evacuation of residents during the peak of the event.

Flood Hazard Profile 0.2% AEP Event

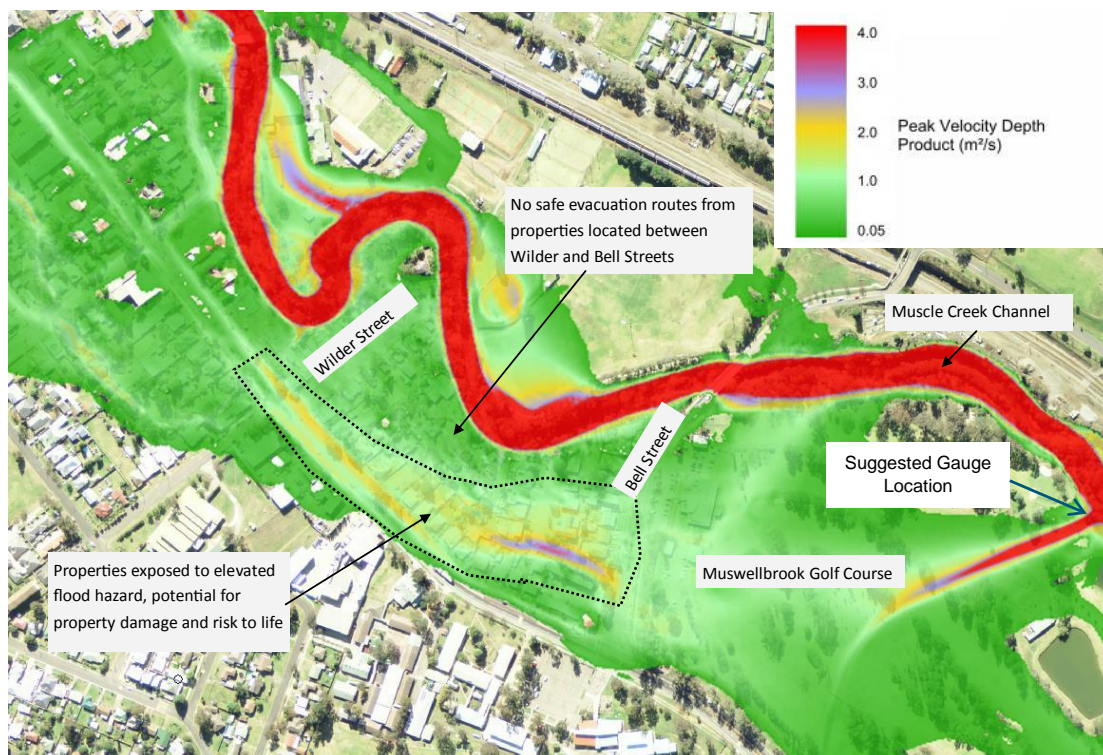


Figure 7-2: Flood Hazard Profile for the 0.2% AEP event

Figure 7-3 shows the flow distribution at Bell Street for the 0.2% AEP event. The chart compares flows through the Bell Street Bridge and Bell Street overflows to the total flow hydrograph. The model results indicate that 18 hours following the commencement of a 0.2% AEP event, flood conditions will be similar to peak 5% AEP conditions, with all flow passing under the Bell Street Bridge. Once overflows over Bell Street commence, peak 1% AEP conditions occur within 1 hour, and progressively increase for a further 2 hours before beginning to recede. This analysis indicates that without a flood warning system, emergency response services would have potentially less than an hour to safely evacuate residents located between Bell and Wilder Streets.

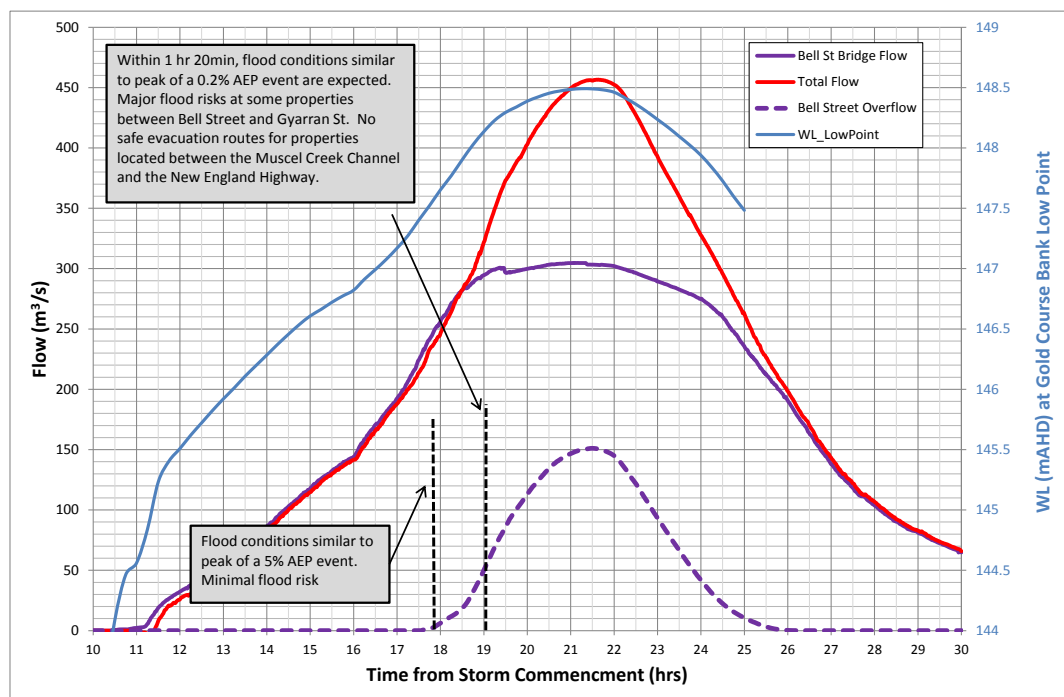


Figure 7-3: Flood Flow Distribution at Bell Street for the 0.2% AEP event

Options for Rainfall based Flood Warning System

The absence of an accurate, telemetered water level gauge in the Muscle Creek catchment means that unless a suitable water level gauge is installed, flood warnings would need to be based on observed or predicted rainfall.

BoM does not operate any flood warning rainfall gauges in the Muscle Creek though it appears there are a number of online private gauges available (www.wunderground.com/personal-weather-station). Warnings based on a specified rainfall depth in a given time could be defined to generate a number of warning levels. An example of this rainfall depth, warning type is presented in **Table 7-2**. It should be noted that the below table would need to be checked and refined prior to adoption. Due to the potential for high spatial variation in the catchment and the lack of BoM gauges, the installation of additional gauges or the use of synthetic gauges based on interrogation of rainfall radar data would be recommended. However, as described below, the development of a water level based warning system is recommended over a rainfall based system, so additional rainfall gauges are low priority, though would enhance the forecast accuracy and may increase available warning times of a flood level based system.

Table 7-2: Example of Rainfall Depth (mm) vs Warning Type for Muscle Creek Catchment

Rain Duration	Warning to Council and NSW SES	Warning for Evacuation	Immediate Evacuation
Short duration intense rain events (assumes wet catchment (i.e. >50mm in previous 24 hours))			
1 hour	40	50	60-70
2 hour	60	80	90-100
Longer duration events (warnings should consider likelihood of future rainfall (i.e. radar or meteye))			
9 hour	100	120	140-160
24 hour	150	200	250-300

Recommendations for Water Level based Flood Warning System

Due to the spatial variability in rainfall and influence of initial and continuing losses on flood levels, a water level based flood warning system is likely to be more reliable than one based on rainfall alone. A list of relevant feature elevations and suggested flood warning levels is presented in **Table 7-3**. It should be noted that these suggested levels are preliminary in nature and should be refined by a more detailed study prior to adoption. A water level gauge located adjacent to the low point in the golf course bank (drainage line) (see **Figure 7-2** for location) would be required to measure the flood/warning levels.

Table 7-3: Feature Elevations and Flood Level Warning Types

Feature	Level (mAHD)
Channel Invert near low bank	143.0
Bank Invert at Low Point	145.75
Warning to Council & SES	146.0
Alert to residents	146.5
Floodwater Spills onto Golf Course	146.7
Alert to residents – Evacuate now	147.0
Floodwater Spills across Bell Street	147.3
Overland flow path down Clifford St make evacuation hazardous	147.4
Above floor flooding of up to 17 properties (approx. 5% AEP event)	147.5
Above floor flooding of up to 38 properties (approx. 1% AEP event)	148.0
Above floor flooding of up to 71 properties (approx. 0.2% AEP event)	148.5
Above floor flooding of up to 168 properties (PMF/Extreme event)	150.6
Alert to Council and NSW SES – flood level has dropped below Bell St	146.0

Water level (i.e. rates of rise) for the 0.2% AEP (500yr ARI) design event is presented in **Figure 7-3** and shows how quickly emergency workers and residents would have to react to be able to safely evacuate the at risk area. From the figure we can see that there is less than 3 hours between water spilling onto the golf course and up to 17 properties being inundated above floor level.

Options for Advanced Hybrid Data / Model based Flood Warning System

An advanced hybrid flood warning system that integrates rainfall and water level data, rainfall radar and forecast rain could further increase available warning times and increase the accuracy of peak water level predictions. Such a system would use observed and forecast rainfall data to run flood models to predict future water levels. This type of system not only provides increased warning time and accuracy it also reduces the likelihood of false warnings being delivered. However, these systems are significantly more expensive to develop and maintain.

Communication

Effective communication of flood warnings is required to reduce the negative impacts of floods. Warning systems should be accurate, timely, reliable and be delivered through appropriate mechanisms. The advantages of a broad range of delivery mechanisms are presented in **Figure 7-4**. It is likely that a mixture of text messages (SMS), automated telephone messages (required for older residents), sirens, flashing lights and door knocking would be required. Prior community awareness of flood risk tends to make warning more effective. Due to the infrequent nature of flooding, it will be important to implement ongoing education programs to ensure residents are informed of flood.

	Informative	Accurate/Trustworthiness	Timeliness	Audience reach	Varying audience capacities	Reliable/Resilient	Little labour required	
								<div>Works well for this aspect</div> <div>Satisfactory for this aspect</div> <div>Limited use for this aspect</div> <div>Does not support this aspect</div> <div>Variable for this aspect</div>
Sirens/alarms								<ul style="list-style-type: none"> Quick; reliable; limited information and reach, but becoming more versatile with voice and remote capabilities
Text message								<ul style="list-style-type: none"> Can reach wide audience very quickly; no power needed Less reliable for areas with poor mobile phone coverage
Automated telephone								<ul style="list-style-type: none"> Landlines becoming less common; people often not at home/indoors
Radio message								<ul style="list-style-type: none"> Electricity not required; widest reach – home, work, travelling Variable accuracy; requires public to be listening
Television								<ul style="list-style-type: none"> Electricity required; variable accuracy; limited reach; requires public to be listening
Websites/ social media								<ul style="list-style-type: none"> Quick dissemination; becoming very widespread; capacity for images Electricity/internet required; variable accuracy
Email								<ul style="list-style-type: none"> Quick dissemination, but usually has to be actively accessed; power and telecommunication infrastructure needed; internet required
Speaker phone								<ul style="list-style-type: none"> Direct, specific communication Requires access to flooded area; difficult to hear
Doorknocking								<ul style="list-style-type: none"> Direct communication; chance to ask questions; high credibility Resource intensive; requires access to flooded area
Letterbox drop								<ul style="list-style-type: none"> Ability to reach almost all audiences, but may miss youth Slow; requires access to flooded area
Noticeboards								<ul style="list-style-type: none"> Useful for roads, infrastructure and location-specific information; can be controlled remotely
Print media								<ul style="list-style-type: none"> Informative/detailed; ability to reach wide audience Time needed; variable accuracy
Word of mouth								<ul style="list-style-type: none"> Uses info from multiple sources; persuasive Variable accuracy

Figure 7-4: Pros and cons of different flood warning communication methods

From <http://chiefscientist.qld.gov.au/publications/understanding-floods/flood-warnings> (accessed 5th April 2017)

Outline of Costs for Flood Warning System Options

Approximate costs for various flood warning system configurations and options are outlined below.

A rainfall based option using rainfall gauges would be the cheapest option, though would require installation of a rain gauge in the catchment. The Australian Early Warning Network company (EWN) delivers a range of warning services to Councils and Commercial organisation throughout Australia. EWN provided the below pricing information for a rainfall based system in Muswellbrook, that would send SMS or phone messages to registered users. EWN operate a 24hr/7day a week staffed operations room and manually check all alerts before generating warnings.

- setup costs (i.e. user registration and implementation of triggers): \$2000-4000
- Monthly monitoring cost \$50/gauge
- \$50 / event + costs of SMS / calls

An allowance for consultancy costs to undertake a desktop or model based assessment of trigger warnings (i.e. refine **Table 7-2**) of \$5,000 to \$15,000 should also be included. Given that two rainfall gauges would be monitored, an allowance of \$1200/yr for monitoring costs would be required. Assuming 4 warnings are generated each year, with warnings distributed to 100 residents or emergency workers (@50c / txt or call), an allowance for \$1600/yr is required.

Installation of an automated water level gauge is likely to cost \$7,000¹ to \$30,000². EWN is able to provide water level based monitoring in addition to rainfall based systems so pricing would be as per above. A siren and/or strobe warning is likely to add \$5,000 to \$10,000 to such a system. A high powered, fully featured and tested, mass alert flood warning system for a large area could cost approximately \$70,000³.

Given the harsh operating conditions that flood warning systems are subjected to, there is usually a typical 30% failure rate of gauges and it is important to include a degree of redundancy in flood warning systems. This means it is advisable to either have dual gauges in the tailwater area or to deploy a water level gauge further up the catchment. A water level gauge higher in the catchment would increase available warning times; however, due to the branched catchment shape, two additional gauges would be desirable. The cost for each additional water level gauges is \$7,000¹ to \$15,000².

An advanced hybrid flood warning system that integrates rainfall and water level data, rainfall radar and/or forecast rain to drive a fast solving flood model would cost \$80,000 to \$100,000⁴ to setup and commission. Annual software and licence costs are likely to be \$10,000 to \$20,000⁴.

A summary of costs for the three options is provided in **Table 7-4**.

It is recommended that after a number of years (say 5) of operation, the system is reviewed and refined. An allowance of \$10,000 - \$15,000 is likely to be sufficient for an external consultant to undertake a full review.

Table 7-4: Summary of Approximate Costs for Flood Warning System Options

Item	Cost
Rainfall based system	
Supply of installation of rainfall gauge	\$4,000- \$6,000 ⁵
Consultancy costs to refine trigger warnings and assist system development	\$5,000-\$15,000
System setup (user registration and implementation of triggers)	\$2,000-\$4,000 ⁶
Monthly monitoring cost (\$50/gauge)	\$1200/year ⁶
Cost to check and disseminate warnings (\$50/event + SMS and calls costs) Assume 100 warnings delivered at 50c per call or SMS and 4 warnings per year.	\$200/year ⁶
Water Level based system using existing BoM gauges	
Consultancy cost to refine trigger warnings and assist system development	\$5,000-\$15,000
Supply of water level gauge (most system include a camera feature)	\$7,000 ¹ - \$30,000 ²
Additional water level gauge (most system include a camera feature)	\$7,000 ¹ - \$15,000 ²
optional siren and/or flashing lights (estimated)	\$5,000- \$10,000
Integrated mass warning system (Whelen WPS2903)	\$70,000 ³
EWN system setup (user registration and implementation of triggers) may be included in some WL warning systems, this option could allow the use of both water level and rain based triggers	\$2,000-\$4,000 ⁶
Monthly monitoring cost (\$50/gauge) single water level gauge only	\$600/year ⁶
Monthly monitoring cost (\$50/gauge) water level only and 2 rain gauges	\$1800/year ⁶
Cost to check and disseminate warnings (\$50/event + SMS and calls costs) Assume 100 warnings delivered at 50c per call or SMS and 4 warnings per year.	\$200/year ⁶
Advanced hybrid flood warning system (including flood model based forecasts)	
Development and commissioning of system	\$120,000 - \$170,000 ⁴
Annual software and licence costs are likely to be \$10,000 to \$50,000	\$10,000 - \$50,000 ⁴

- Notes:
- 1) cost for dipstik system (low accuracy system with basic image output, though SMS is also available)
 - 2) cost for Digilant system (radar based WL gauge with high functioning interface including software and SMS alerts)
 - 3) proposed cost for Wallsend Flood Warning System using a Whelen WPS2903 based system (Prospect Environmental)
 - 4) based on proposed cost for Parramatta CBD Flood Warning System using Lizard Portal interface and a cloud based 3Di flood model.
 - 5) estimated
 - 6) based discussions with EWN (The Australian Early Warning Network company)

Costs Benefit Considerations for Flood Warning Systems

The benefit of such a system is difficult to quantify. While the limited warning time is likely to allow for residents to raise some items (and therefore reducing flood damages), this cannot be relied upon to reduce damages. The main benefit of such a system is in intangibles including reduced fear in the community and also reduced likelihood of flood related loss of life.

Summary & Recommendation

Based on the information presented above, the implementation of flood warning systems is recommended for the Muscle Creek unless options MC1 or MC2 are implemented in say a 5 year timeframe.

The higher degree of uncertainty associated with a solely rainfall based system is unlikely to fit in with expectations of a flood warning system. A water level based flood warning system would provide a higher degree of certainty in the warning and can be more easily related to the degree of flood risk (i.e. number of properties inundated) that exists in the area of interest. While a hybrid (model based) flood warning system may be able to produce more accurate estimates of peak water level and would provide an increase in the available warning time, given the relative ease of evacuation for properties in the area it may be difficult to justify the higher cost of such a system.

Based on the above, it is recommended that a water level based flood warning system is implemented in Muscle Creek to potentially protect against flood related tragedy. The initial cost for such a system could cost up to \$55,000 (for a single water level gauge (including camera feed)), including low powered sirens or flashing light and \$15,000 for consultancy, design and installation) and an annual allowance of \$1600 for ongoing costs is required.

In order to increase available warning times, the addition of rainfall based triggers is recommended. The installation of one (preferably two) rainfall gauges is likely to cost \$4000-\$6000 and annual cost of the flood warning system would cost \$1200/yr and allowance of up to \$15,000 may be required to refine alert triggers. The use of predicted (i.e. forecast) rainfall products should also be considered to provide even greater flood warning times. These increased flood warning times would assist emergency services such as the SES coordinate resources during severe flood events. When developing the flood warning service, it is recommended that input from the new national Flash Flood Advisory Resource (FLARE) is sought. FLARE is an authoritative resource created to assist responsible agencies to design, implement and manage fit-for-purpose flash flood warning systems. FLARE is coordinated by the BoM and aims to help agencies, and through them the community, to increase their resilience to flash floods through better preparation and more effective response.

PART B – FLOODPLAIN RISK MANAGEMENT PLAN

8 Draft Hunter River (Muswellbrook to Denman) Floodplain Risk Management Plan

8.1 Introduction

The following section forms the draft Muswellbrook to Denman Floodplain Risk Management Plan (the FRM Plan) and provides a framework by which the plan will be implemented. The objective of this Plan is to recommend a range of property, response and flood modification measures to mitigate the existing and future flood affectation in the study area. This plan has been completed in accordance with the Floodplain Development Manual (NSW State Government, 2005).

8.2 Floodplain Risk Management Measures

The implementation program essentially forms the action list for this Plan and is shown in **Table 8-1**. The benefit of following this sequence is that gradual improvement of the floodplain occurs, as the funds become available for implementation of these options. Further steps in the floodplain management process include:

- Draft Plan to be exhibited for public comment
- Plan to be finalised incorporating public comments
- Floodplain Management Committee to consider and adopt recommendations of this Plan;
- Council to consider the Floodplain Management Committee's recommendations;
- Council to adopt the Plan and submit an application for funding assistance to OEH and other agencies as appropriate; and
- As funds become available from Council's own resources, OEH and/or other state government agencies, implement the measures in accordance with the established priorities.

Table 6-21, provides a summary and brief analysis of the all the Floodplain Risk Management options including further details of what each option entails. Full details of the options are provided in the Muswellbrook Floodplain Risk Management Study (i.e. Part A of this document (mostly in **Section 6.4**)).

The FRM Plan as detailed in **Table 8-1**, should be regarded as a dynamic instrument requiring review and modification over time. The catalyst for change could include new flood events and experiences, legislative change, alterations in the availability of funding or changes to the area's planning strategies. In any event, a thorough review every five years is warranted to ensure the ongoing relevance of the FRM Plan.

Table 8-1: Mitigation Measures Recommended for Implementation

Measure*	Description	Estimated Capital Costs and (Ongoing Costs)	Responsibility and Funding	Priority / Time frame
MC1¹ or MC2¹	Muscle Creek Enhance creek bank adjacent to golf course	\$840,000	Council and OEH	Medium - High 2-5 years ¹
	Golf course flood bund	\$1,100,000		
FW1¹	Flood warning system for Muscle Creek	\$50,000 to \$100,000 (\$5000/yr)	Council and OEH	Medium - High 2-3 years ¹
EM1	Emergency Management Planning (develop a Local Flood Plan)	SES and Council staff time of ~\$10,000	SES	High <1 years
P3³	Consider VP and/or VHR for significant risk properties currently experience above floor flooding in the 5% AEP flood event	The VHR of 12 properties and VP of 6 properties is estimated to cost \$2.40 Mil. Further analysis is recommended to identify which of the VHR/VP properties are in a high risk area and should be prioritised	VP – Council and OEH VHR - Property owner and OEH	Low-Medium <2 years
P4	Update the LEP	Council staff time of \$5,000-10,000	Council	High <1 years
D1	Blockage / maintenance policy to unblock 2 Virginia St (Denman) culverts	\$50,000 over 50 years	Council	Medium - High <1 years
EM2	Community Flood Education	Council / SES staff time ~\$10,000	Council / SES.	Medium 2-5 years
HRS1	Muswellbrook Backwater Levee	\$2.25 Million	Council and OEH	Low 2-10 years ²
HRS2	Sydney Street Levee	\$3.5 Million	Council and OEH	Low 2-10 years ²

Notes: * details of the mitigation measures are provided in **Table 6-21** and **Section 6.4**

VP = Voluntary Purchase, VHR = Voluntary House Raising

- 1) If MC1 or MC2 are not implemented within a 2 to 5 year timeframe, a flood warning system is recommended to reduce risk to life from rapidly rising floodwaters that sweep through residential areas of Muswellbrook to the south of Muscle Creek and can isolate the southern side of town as frequently as the 5% AEP flood event.
- 2) Due to the high cost and low B/C ratio of these options they would require long term planning and it may be difficult to obtain funding from OEH until higher priority flood risks in NSW have been dealt with.
- 3) A desktop study into the prioritisation of all at risk properties suitable for VP or VHR should be conducted.

8.3 Funding, Implementation and Actions

8.3.1 Funding and Implementation

The timing of the implementation of recommended measures will depend on the available resources, overall budgetary commitments of Council and the availability of funds and support from other sources. It is envisaged that the FRM Plan would be implemented progressively over a 5 year time frame.

There are a variety of sources of potential funding that could be considered to implement the FRM Plan. These include:

- Council funds and staff resources;
- Section 94 contributions;
- State funding for flood risk management measures through the Office of Environment and Heritage; and
- State Emergency Service, either through volunteered time or funding assistance for emergency management measures.

State funds are available to implement measures that contribute to reducing existing flood problems. Funding assistance is likely to be available on a 2:1 (State:Council) basis. Although much of the FRM Plan may be eligible for Government assistance, funding cannot be guaranteed. Government funds are allocated on an annual basis to competing projects throughout the State. Measures that receive Government funding must be of significant benefit to the community. Funding is usually available for the investigation, design and construction of flood mitigation works included in the floodplain management plan.

9 References

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Institution of Engineers Australia (1987), 'Australian Rainfall and Runoff – A Guide to Flood Estimation'

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RHDHV (2016b) "Muswellbrook Levee System: Desk Study", 16 November 2016, Memo prepared for Muswellbrook Shire Council and the NSW Office of Environment & Heritage.

RHDHV (2017a) "Hunter River Flood Study (Muswellbrook to Denman) Model Revisions Report", 19 October 2017, Report prepared for Muswellbrook Shire Council and the NSW Office of Environment & Heritage

RHDHV (2017b) "Muscle Creek Flood Study", 30 January 2017, Report prepared for Muswellbrook Shire Council and the NSW Office of Environment & Heritage

RHDHV (2017c) "Denman Overland Flow Flood Study", 30 January 2017, Report prepared for Muswellbrook Shire Council and the NSW Office of Environment & Heritage

SMEC (2015a) "Possum Gully Catchment Stormwater Drainage Study – Options Assessment Report", Draft, June 2015, Prepared for Muswellbrook Shire Council.

SMEC (2015b) "Possum Gully Catchment Stormwater Drainage Study – Concept Design Report", November 2015, Prepared for Muswellbrook Shire Council.

Water Resource Commission (1986), 'Muswellbrook Flood Study'

WMAwater (2013) "Aberdeen Flood Study"

Worley Parson (2014) "HUNTER RIVER FLOOD STUDY (MUSWELLBROOK TO DENMAN)" Rev C 8/9/2014, Report prepared for Muswellbrook Shire Council and the NSW Office of Environment & Heritage.

Appendix A – Muswellbrook FRMS - Compendium of Flood Maps

A separate A3 Compendium of Flood Maps is provided as a companion document to the Muswellbrook floodplain risk management study (FRMS) report. Further details of the studies used to produce inputs to the maps are provided in Section 4.1. Flood behaviour in study area was quantified for three different flood mechanisms (refer Section 2.1) during the project as reported in:

- Hunter River Flood Study (Muswellbrook to Denman) Model Revision Report (RHDHV, 2017a)
- Muscle Creek Flood Study (RHDHV, 2017b)
- Denman (Local Catchment) Overland Flow Study (RHDHV, 2017c).

Flood extents from each individual flood mechanism were combined to produce a single design flood extent which represents the magnitude of flooding for a given frequency (i.e. annual exceedance probability (AEP) or average recurrence interval (ARI)).

Each Figure contains a series of four maps including:

- a) Hunter River Overview (Kyuga to Doyles Creek)
- b) Muswellbrook – North
- c) Muswellbrook - South
- d) Denman

List of Figures:

Peak Flood Depths

Figure Dep 5%– Peak Flood Depth and Water Levels (5% AEP (20yr ARI) Event)
 Figure Dep 1%– Peak Flood Depth and Water Levels (1% AEP (100yr ARI) Event)
 Figure Dep 0.2%– Peak Flood Depth and Water Levels (0.2% AEP (500yr ARI) Event)
 Figure Dep PMF – Peak Flood Depth and Water Levels (PMF Event)

Peak Flood Velocity

Figure Vel 5%– Peak Flood Velocity (5% AEP (20yr ARI) Event)
 Figure Vel 1%– Peak Flood Velocity (1% AEP (100yr ARI) Event)
 Figure Vel 0.2%– Peak Flood Velocity (0.2% AEP (500yr ARI) Event)
 Figure Vel PMF – Peak Flood Velocity (PMF Event)

Provisional Flood Hazard & Hydraulic Categorisation

Figure Haz 1% – Peak Flood Hazard (1% AEP (100yr ARI) Event)
 Figure Hyd Cat 1% – Preliminary Hydraulic Categories (1% AEP (100yr ARI) Event)
 Figure Hyd Cat PMF – Preliminary Hydraulic Categories PMF Event

Appendix B – Mitigation Option Cost Calculations

Appendix B presents detailed cost estimations which been undertaken for the eight mitigation options listed below:

- HRS1 - Backwater Levee Option – Section 6.4.1
- HRS2 - Sydney Street Levee Option – Section 6.4.2
- HRS3 - Channel Vegetation Removal – Section 6.4.3
- MC1 - Enhance creek bank adjacent to golf course – Section 6.4.4
- MC2 - Golf course flood bund – Section 6.4.5
- MC3 - Channel vegetation management – Section 6.4.6
- D1 - Blockage / maintenance policy to unblock 2 Virginia St (Denman) culverts – Section 6.4.7
- D2 - Upgrade to Virginia St (Denman) culvert (north) - Section 6.4.8

These cost estimates are indicative and are based on our experience from a number of projects at a range of sites and conditions. This estimates are provided for broad guidance only and are NOT guaranteed by Royal HaskoningDHV as we have no control over contractor's prices, market forces and competitive bids from tenderers. Any construction cost estimates provided may exclude items which should be considered in a cost plan. Examples of such items are design fees, project management fees, authority approval fees, contractors risk, preliminaries and project contingencies (e.g. to account for construction and site conditions, weather conditions, ground conditions and unknown services). If a reliable cost estimate is required, an appropriately qualified Quantity Surveyor should be engaged and market feedback sought.

It should be noted that the cost estimates are suitable for the comparison and assessment of the mitigation options for the Muswellbrook Floodplain Risk Management Study.



Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council
Project Name: Muswellbrook Floodplain Risk Management Study
OPTION HRS1 - Backwater Levee

RHDHV Job No. PA1233

Item #	Description	Rate (2018)	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 20,000	item	1	\$ 20,000
1.2	Supervision, management, amenities	\$ 2,500	Weeks	12	\$ 30,000
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000	Days	3	\$ 15,000
1.4	Geotechnical testing	\$ 150	Tests	10	\$ 1,500
1.5	Relocation and protection of Services	\$ 50,000	item	1	\$ 50,000
1.6	Traffic control	\$ 10,000	item	1	\$ 10,000
1.7	Preparation and implementation of Works EMP	\$ 20,000	item	1	\$ 20,000
				Subtotal	\$ 146,500
2	Clearing & Demolition				
2.1	Clear vegetation for levee alignment	\$ 0.38	sqm	16,440	\$ 6,247
2.2	Removal of Tree and grub up stumps	\$ 161.00	no.	25	\$ 4,025
2.3	Demolition and rebuilding of residential fences	\$ 77.00	m	225	\$ 17,325
2.4	Allowance for demolition of residential/farm sheds	\$ 59.00	sqm	91	\$ 5,369
				Subtotal	\$ 32,966
3	Topsoil, Mulch and Turf				
3.1	Strip and Stockpile 150mm of topsoil from construction areas	\$ 5.60	cum	2,466	\$ 13,810
3.2	Replace 150mm topsoil on construction areas	\$ 5.94	cum	2,528	\$ 15,004
3.3	Turf to Embankment	\$ 9.00	sqm	16,851	\$ 151,659
3.4	Turf Maintenance	\$ 1.09	sqm	16,851	\$ 18,368
				Subtotal	\$ 198,840
4	Bulk Earthworks for Levee				
4.1	Bulk Excavation to form cut-off trench (0.6m deep)	\$ 50.40	cum	888	\$ 44,743
4.2	Trim and compact subgrade	\$ 2.43	sqm	16,440	\$ 39,906
4.3	Allowance for removal and replacement of unsuitable subgrade with imported select fill as bridging layer (5% of trim area x 300mm)	\$ 53.07	cum	247	\$ 13,088
4.4	Geotextile Fabric	\$ 6.89	sqm	16,440	\$ 113,272
4.5	Imported fill for embankment and cut off trench	\$ 25.00	cum	9,600	\$ 240,000
4.6	Place and compact embankment material in 150mm layers (inc. cut off.)	\$ 25.00	cum	9,600	\$ 240,000
4.7	Trim Batters	\$ 3.55	sqm	13,563	\$ 48,149
				Subtotal	\$ 739,158
5	Sheetpile Wall				
5.1	Sheetpiling along corner of Hunter Terrace and William St	\$ 460.00	sqm	195	\$ 89,700
				Subtotal	\$ 89,700
6	Concrete Works				
6.1	RC Concrete Headwall foundation	\$ 526.00	cu.m	2.0	\$ 1,052
6.2	RC Concrete Headwall (200mm thick)	\$ 456.00	sq.m	28.9	\$ 13,178
6.3	Construct reinforced concrete wingwalls	\$ 450.00	sqm.	2.8	\$ 1,260
6.4	Construct reinforced concrete apron (300mm thick with 600mm downturn)	\$ 330.00	cum.	2.0	\$ 655
				Subtotal	\$ 16,146
7	Culverts Units (through levee)				
7.1	Levee Culverts - Standard 3.6 x 3.6 Box Culvert Crown Units delivered to site	\$ 9,010.00	item	2	\$ 18,020
7.2	Levee Construction around Culvert	\$ 32.70	cum	2,000	\$ 65,400
7.3	Culvert flood gate	\$ 1,000.00	item	1	\$ 1,000
				Subtotal	\$ 84,420
8	Scour Protection				
8.1	Geotextile Fabric	\$ 6.89	sqm	112	\$ 772
8.2	Allow for 800mm thick Rock Rip- Rap Armour	\$ 159.00	sqm	112	\$ 17,808
8.3	Allow for 400mm underlayer	\$ 68.90	sqm	112	\$ 7,717
				Subtotal	\$ 26,296
SUBTOTAL (excl. GST)					\$ 1,334,027
Muswellbrook Regional Factor					\$ 120,062
Engineering Design (4%)					\$ 53,361.07
Environmental Assessment and Approvals					\$ 50,000
Tender Preparation (0.6%)					\$ 8,004
Supervision and Contract Administration (2%)					\$ 26,680.53
Contingency (50%)					\$ 667,013
TOTAL (excl. GST)					\$ 2,259,148
Adopted TOTAL (excl. GST)					\$ 2,250,000

08 April 2019

PA1233 01 Muswellbrook FRMS&P

Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council
Project Name: Muswellbrook Floodplain Risk Management Study
OPTION HR52 - Sydney Street Levee

RHDHV Job No. PA1233

Item #	Description	Rate (2018)	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 20,000	item	1	\$ 20,000
1.2	Supervision, management, amenities	\$ 2,500	Weeks	12	\$ 30,000
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000	Days	3	\$ 15,000
1.4	Geotechnical testing and certification of pavements	\$ 150	Tests	10	\$ 1,500
1.5	Relocation and protection of Services	\$ 80,000	item	1	\$ 80,000
1.6	Traffic control	\$ 30,000	item	1	\$ 30,000
1.7	Preparation and implementation of Works EMP	\$ 20,000	item	1	\$ 20,000
				Subtotal	\$ 196,500
2	Clearing & Demolition				
2.1	Clear vegetation for levee alignment	\$ 0.38	sqm	15,600	\$ 5,928
2.2	Removal of Tree and grub up stumps	\$ 161.00	no.	32	\$ 5,152
2.4	Demolition and rebuilding of residential fences	\$ 77.00	m	686	\$ 52,822
2.5	Allowance for demolition of residential/farm sheds	\$ 59.00	sqm	1,118	\$ 65,962
2.6	Sawcut Carpark Pavement	\$ 10.00	m	175	\$ 1,750
2.7	Break out Existing Pavement	\$ 3.50	sqm	1,015	\$ 3,553
				Subtotal	\$ 135,167
3	Topsoil, Mulch and Turf				
3.1	Strip and Stockpile 150mm of topsoil from construction areas	\$ 5.60	cum	2,340	\$ 13,104
3.2	Replace 150mm topsoil on construction areas	\$ 5.94	cum	2,399	\$ 14,237
3.3	Turf to Embankment	\$ 9.00	sqm	15,990	\$ 143,910
3.4	Turf Maintenance	\$ 1.09	sqm	15,990	\$ 17,429
				Subtotal	\$ 188,681
4	Bulk Earthworks for Levee				
4.1	Bulk Excavation to form cut-off trench (0.6m deep)	\$ 50.40	cum	842	\$ 42,457
4.2	Trim and compact subgrade	\$ 2.43	sqm	15,600	\$ 37,867
4.3	Allowance for removal and replacement of unsuitable subgrade with imported select fill as bridging layer (5% of trim area x 300mm)	\$ 53.07	cum	234	\$ 12,419
4.4	Geotextile Fabric	\$ 6.89	sqm	15,600	\$ 107,484
4.5	Imported fill for embankment and cut off trench	\$ 25.00	cum	12,500	\$ 312,500
4.6	Place and compact embankment material in 150mm layers (inc. cut off.)	\$ 25.00	cum	12,500	\$ 312,500
4.7	Trim Batters	\$ 3.55	sqm	12,870	\$ 45,689
				Subtotal	\$ 870,916
5	Sheetpile Wall				
5.1	Sheetpiling near Sydney sheet (eastern end of earth levee)	\$ 460.00	sqm	315	\$ 144,900
				Subtotal	\$ 144,900
6	Blockwork Levee Wall				
6.1	Reinforced Concrete Footing Including Excavation (300mm thick)	\$ 564	cum	466	\$ 262,937
6.2	Blockwork Wall	\$ 233	sqm	514	\$ 119,762
				Subtotal	\$ 382,699
7	Temporary Flood Barriers/Gates				
7.1	Floodgate footing with post inserts and 2x concrete end wall embedded in levee banks for Sydney St Gates	\$ 18,500	item	2	\$ 37,000
7.2	Portable Flood gates across Sydney St	\$ 2,150	m	44	\$ 94,600
7.3	Portable Floodstop barriers across Lorne St and Francis St	\$ 800	m	28	\$ 22,400
7.4	Allowance for storage, transport and installation of temporary flood barriers/gates	\$ 20,000	item	1	\$ 20,000
				Subtotal	\$ 174,000
8	Relocate Driveway at 133 Sydney Street				
8.1	Sawcut Driveway	\$ 10.00	m	6	\$ 60
8.2	Break out existing Driveway	\$ 3.50	sqm	210	\$ 735
8.3	Excavate new alignment to reduced levels	\$ 5.45	cum	75	\$ 409
8.4	Cut to fill and level old alignment	\$ 8.20	cum	75	\$ 615
8.5	Trim and compact subgrade	\$ 2.43	sqm	150	\$ 365
8.6	30mm AC Concrete	\$ 17.00	sqm	150	\$ 2,549
8.7	7mm Primer Seal	\$ 5.87	sqm	150	\$ 881
8.8	150mm Basecourse	\$ 15.45	sqm	150	\$ 2,318
8.9	380mm Sub-base	\$ 61.80	sqm	150	\$ 9,270
8.10	Allowance to make smooth connection with existing road	\$ 206.00	lin.m	25	\$ 5,150
8.11	Upright Kerb and Gutter	\$ 247.20	lin.m	14	\$ 3,461
8.12	Construct new driveway entry	\$ 125.00	lin.m	14	\$ 1,750
				Subtotal	\$ 27,561
				SUBTOTAL (excl. GST)	\$ 2,120,424
				Muswellbrook Regional Factor	\$ 190,838
				Engineering Design (4%)	\$ 84,816.94
				Environmental Assessment and Approvals	\$ 50,000
				Tender Preparation (0.6%)	\$ 12,723
				Supervision and Contract Administration (2%)	\$ 42,408.47
				Contingency (50%)	\$ 1,060,212
				TOTAL (excl. GST)	\$ 3,561,421
				Adopted TOTAL (excl. GST)	\$ 3,500,000

08 April 2019

PA1233 01 Muswellbrook FRMS&P



Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council

RHDHV Job No. PA1233

Project Name: Muswellbrook Floodplain Risk Management Study

Option HRS3 - Hunter River Vegetation Management

Item #	Description	Rate	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 20,000	item	5	\$ 100,000
1.2	Supervision, management, amenities	\$ 2,500	Weeks	52	\$ 130,000
1.3	Survey, Service Location and setout of works	\$ 5,000	Days	20	\$ 100,000
1.4	Protection of Services	\$ 20,000	item	1	\$ 20,000
1.5	Relocation and protection of Fauna	\$ 300,000	item	1	\$ 300,000
1.6	Traffic control	\$ 40,000	item	1	\$ 40,000
1.7	Preparation and implementation of Works EMP	\$ 100,000	item	1	\$ 100,000
				Subtotal	\$ 790,000
2	Clearing				
2.1	Mechanical clearing of bank vegetation, grub roots, burn on site	\$ 1.00	sqm	208,000	\$ 208,000
2.2	Manual Clearing of bank vegetation, grub roots, burn on site	\$ 1.50	sqm	39,000	\$ 58,500
2.3	Remove noxious weeds	\$ 10.00	sqm	13,000	\$ 130,000
2.4	Tree removal, grub roots, cart away	\$ 165.00	no.	400	\$ 66,000
2.5	Cartage of ashes off site	\$ 11.40	cum	7,657	\$ 87,290
2.6	Disposal of ashes	\$ 50.00	tonne	4,977	\$ 248,853
				Subtotal	\$ 798,642
3	Bank Stabilisation with Less Dense Vegetation				
3.1	150mm topsoil on bank areas	\$ 5.94	cum	39,000	\$ 231,504
3.2	Jute Mat	\$ 1.10	sqm	260,000	\$ 286,000
3.3	Planting	\$ 15.00	sqm	130,000	\$ 1,950,000
				Subtotal	\$ 2,467,504
4	Ongoing Maintenance of Channel Vegetation				
4.1	Remove noxious weeds	\$ 26,000	years	25	\$ 452,742
4.2	Mechanical clearing of bank vegetation, grub roots, burn on site	\$ 13,000	years	10	\$ 110,893
				Subtotal	\$ 563,634
				SUBTOTAL (excl. GST)	\$ 4,619,781
				Muswellbrook Regional Factor	\$ 415,780
				Landscape Design	\$ 100,000
				Environmental Assessment and Approvals	\$ 300,000
				Tender Preparation (0.6%)	\$ 27,719
				Supervision and Contract Administration (2%)	\$ 92,395.62
				Contingency (50%)	\$ 2,309,890
				TOTAL (excl. GST)	\$ 7,865,566
				Adopted TOTAL (excl. GST)	\$ 8,000,000

Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council
Project Name: Muswellbrook Floodplain Risk Management Study
OPTION MC1 - Enhance Creek Bank at Golf Course

RHDHV Job No. PA1233

Item #	Description	Rate (2018)	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 15,000.00	item	1	\$ 15,000
1.2	Supervision, management, amenities	\$ 2,500.00	Weeks	5	\$ 12,500
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000.00	Days	1	\$ 5,000
1.4	Geotechnical testing	\$ 150.00	Tests	10	\$ 1,500
1.5	Preparation and implementation of Works EMP	\$ 10,000.00	item	1	\$ 10,000
				Subtotal	\$ 44,000
2	Clearing & Demolition				
2.1	Clear vegetation for levee alignment	\$ 0.38	sqm	5,004	\$ 1,902
2.2	Removal of Tree and grub up stumps	\$ 161.00	no.	4	\$ 644
2.3	Sawcut existing pathway near club house	\$ 10.00	m	6	\$ 60
2.4	Demolish existing path	\$ 30.00	sqm	45	\$ 1,350
				Subtotal	\$ 3,956
3	Topsoil, Mulch and Turf				
3.1	Strip and Stockpile 150mm of topsoil from construction areas	\$ 5.60	cum	751	\$ 4,203
3.2	Replace 150mm topsoil on construction areas	\$ 5.94	cum	767	\$ 4,552
3.3	Turf to Embankment	\$ 9.00	sqm	5,112	\$ 46,012
3.4	Turf Maintenance	\$ 1.09	sqm	5,112	\$ 5,573
				Subtotal	\$ 60,340
4	Bulk Earthworks for Levee				
4.1	Bulk Excavation to form cut-off trench (0.6m deep)	\$ 50.40	cum	450	\$ 22,698
4.2	Trim and compact subgrade	\$ 2.43	sqm	5,004	\$ 12,147
4.3	Allowance for removal and replacement of unsuitable subgrade with imported select fill as bridging layer (5% of trim area x 300mm)	\$ 53.07	cum	75	\$ 3,984
4.4	Geotextile Fabric	\$ 6.89	sqm	5,004	\$ 34,478
4.5	Imported fill for embankment and cut off trench	\$ 25.00	cum	2,000	\$ 50,000
4.6	Place and compact embankment material in 150mm layers (inc. cut off.)	\$ 25.00	cum	2,000	\$ 50,000
4.7	Trim Batters	\$ 3.55	sqm	3,444	\$ 12,228
				Subtotal	\$ 185,534
5	Concrete Works				
5.1	Rebuild 3000mm wide pathway (150mm thick)	\$ 180.00	m	15	\$ 2,700
				Subtotal	\$ 2,700
				SUBTOTAL (excl. GST)	\$ 296,529
				Muswellbrook Regional Factor	\$ 26,688
				Engineering Design (4%)	\$ 11,861.17
				Environmental Assessment and Approvals	\$ 50,000
				Tender Preparation (0.6%)	\$ 1,779
				Supervision and Contract Administration (2%)	\$ 5,930.58
				Contingency (50%)	\$ 148,265
				TOTAL excluding Railway Levee (excl. GST)	\$ 541,052
				Allowance for Railway Levee (excl. GST)	\$ 300,000
				TOTAL including Railway Levee (excl. GST)	\$ 841,052
				Adopted TOTAL (excl. GST)	\$ 840,000



Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council
Project Name: Muswellbrook Floodplain Risk Management Study
OPTION MC2 - Golf Course Flood Bund

RHDHV Job No. PA1233

Item #	Description	Rate (2018)	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 15,000.00	item	1	\$ 15,000
1.2	Supervision, management, amenities	\$ 2,500.00	Weeks	5	\$ 12,500
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000.00	Days	1	\$ 5,000
1.4	Geotechnical testing	\$ 150.00	Tests	10	\$ 1,500
1.5	Preparation and implementation of Works EMP	\$ 10,000.00	item	1	\$ 10,000
				Subtotal	\$ 44,000
2	Clearing & Demolition				
2.1	Clear vegetation for levee alignment	\$ 0.38	sqm	5,540	\$ 2,105
2.2	Removal of Tree and grub up stumps	\$ 161.00	no.	15	\$ 2,415
				Subtotal	\$ 4,520
3	Topsoil, Mulch and Turf				
3.1	Strip and Stockpile 150mm of topsoil from construction areas	\$ 5.60	cum	831	\$ 4,654
3.2	Replace 150mm topsoil on construction areas	\$ 5.94	cum	852	\$ 5,056
3.3	Turf to Embankment	\$ 9.00	sqm	5,679	\$ 51,107
3.4	Turf Maintenance	\$ 1.09	sqm	5,679	\$ 6,190
				Subtotal	\$ 67,006
4	Bulk Earthworks for Levee				
4.1	Bulk Excavation to form cut-off trench (0.6m deep)	\$ 50.40	cum	299	\$ 15,078
4.2	Trim and compact subgrade	\$ 2.43	sqm	5,540	\$ 13,448
4.3	Allowance for removal and replacement of unsuitable subgrade with imported select fill as bridging layer (5% of trim area x 300mm)	\$ 53.07	cum	83	\$ 4,410
4.4	Geotextile Fabric	\$ 6.89	sqm	5,540	\$ 38,171
4.5	Imported fill for embankment and cut off trench	\$ 25.00	cum	5,000	\$ 125,000
4.6	Place and compact embankment material in 150mm layers (inc. cut off.)	\$ 25.00	cum	5,000	\$ 125,000
4.7	Trim Batters	\$ 3.55	sqm	4,571	\$ 16,225
				Subtotal	\$ 337,332
				SUBTOTAL (excl. GST)	\$ 452,858
				Muswellbrook Regional Factor	\$ 40,757
				Engineering Design (4%)	\$ 18,114.31
				Environmental Assessment and Approvals	\$ 50,000
				Tender Preparation (0.6%)	\$ 2,717
				Supervision and Contract Administration (2%)	\$ 9,057.16
				Contingency (50%)	\$ 226,429
				TOTAL excluding Railway Levee (excl. GST)	\$ 799,933
				Allowance for Railway Levee (excl. GST)	\$ 300,000
				TOTAL including Railway Levee (excl. GST)	\$ 1,099,933
				Adopted TOTAL (excl. GST)	\$ 1,100,000

Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council

RHDHV Job No.

PA1233

Project Name: Muswellbrook Floodplain Risk Management Study

Option MC3 - Muscle Creek Vegetation Management

Item #	Description	Rate	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 20,000	item	1	\$ 20,000
1.2	Supervision, management, amenities	\$ 2,500	Weeks	20	\$ 50,000
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000	Days	5	\$ 25,000
1.4	Relocation and protection of Services	\$ 20,000	item	1	\$ 20,000
1.5	Relocation and protection of Fauna	\$ 20,000	item	1	\$ 20,000
1.6	Traffic control	\$ 10,000	item	1	\$ 10,000
1.7	Preparation and implementation of Works EMP	\$ 20,000	item	1	\$ 20,000
				Subtotal	\$ 165,000
2	Clearing				
2.1	Mechanical clearing of bank vegetation, grub roots, burn on site	\$ 1.00	sqm	80,000	\$ 80,000
2.2	Manual Clearing of bank vegetation, grub roots, burn on site	\$ 1.50	sqm	15,000	\$ 22,500
2.3	Remove noxious weeds and cart away	\$ 10.00	sqm	5,000	\$ 50,000
2.4	Tree removal, grub roots, cart away	\$ 165.00	no.	500	\$ 82,500
2.5	Cartage of ashes off site	\$ 2.85	cum	2,945	\$ 8,393
2.6	Disposal of ashes	\$ 50.00	tonne	1,914	\$ 95,713
				Subtotal	\$ 339,106
3	Bank Stabilisation with Less Dense Vegetation				
3.1	150mm topsoil on bank areas	\$ 5.94	cum	5,000	\$ 29,680
3.2	Jute Mat	\$ 1.10	sqm	50,000	\$ 55,000
3.3	Planting	\$ 15.00	sqm	5,000	\$ 75,000
				Subtotal	\$ 159,680
4	Ongoing Maintenance of Channel Vegetation				
4.1	Remove noxious weeds	\$ 10,000	year	25	\$ 174,131
4.2	Mechanical clearing of bank vegetation, grub roots, burn on site	\$ 15,000	year	10	\$ 127,953
				Subtotal	\$ 302,085
SUBTOTAL (excl. GST)					\$ 663,786
Muswellbrook Regional Factor					\$ 59,741
Landscape Design					\$ 25,000
Environmental Assessment and Approvals					\$ 25,000
Tender Preparation (0.6%)					\$ 3,983
Supervision and Contract Administration (2%)					\$ 13,275.72
Contingency (50%)					\$ 331,893
TOTAL (excl. GST)					\$ 1,122,678
TOTAL (excl. GST) Including Maintenance					\$ 1,424,762
Adopted TOTAL (excl. GST)					\$ 1,400,000



Haskoning Australia Pty Ltd

Budget Cost Estimate

Date: 3-May-18

Client: Muswellbrook Shire Council

RHDHV Job No.

PA1233

Project Name: Muswellbrook Floodplain Risk Management Study

OPTION D1 - Virginia St Culvert Blockage Maintenance

Item #	Description	Rate	Unit	Qty	Total
1	Blockage Maintenance				
1.1	Culvert cleaning & maintenance	\$ 2,500	year	50	\$ 47,922
SUBTOTAL (excl. GST)					\$ 47,922
Tender Preparation (0.6%)					\$ 288
Supervision and Contract Administration (2%)					\$ 958.44
Contingency (0%)					\$ -
TOTAL (excl. GST)					\$ 49,168
Adopted TOTAL (excl. GST)					\$ 50,000

Value represents present value of \$2500 payment per year at 5% inflation for 50year

Budget Cost Estimate

Haskoning Australia Pty Ltd

Date: 3-May-18

Client: Muswellbrook Shire Council
Project Name: Muswellbrook Floodplain Risk Management Study
OPTION D2 - Virginia St Culvert Upgrade

RHDHV Job No. PA1233

Item #	Description	Rate (2018)	Unit	Qty	Total
1	General				
1.1	Site establishment	\$ 10,000	item	1	\$ 10,000
1.2	Supervision, management, amenities	\$ 2,500	Weeks	4	\$ 10,000
1.3	Survey, Service Location and setout of works by surveyor	\$ 5,000	Days	1	\$ 5,000
1.4	Geotechnical testing and certification of pavements	\$ 20	Tests	5	\$ 100
1.5	Relocation and protection of Services	\$ 10,000	item	1	\$ 10,000
1.6	Traffic control	\$ 10,000	item	1	\$ 10,000
1.7	Preparation and implementation of Works EMP	\$ 10,000	item	1	\$ 10,000
				Subtotal	\$ 55,100
2	Clearing & Demolition				
2.1	Clear vegetation	\$ 0.38	sqm	200.0	\$ 76
2.2	Removal of Tree and grub up stumps	\$ 25.00	no.	3.0	\$ 75
2.3	Sawcut existing roadway & kerb	\$ 10.00	m	24.0	\$ 240
2.4	Break up and remove bitumen	\$ 3.50	sqm	120.0	\$ 420
2.5	Sawcut existing footpath	\$ 10.00	m	3.0	\$ 30
2.6	Demolish and remove existing foot path (inc. handrail)	\$ 30.00	sqm	15.0	\$ 450
2.7	Excavate around culverts	\$ 5.45	cum	45.0	\$ 245
2.8	Remove existing culvert cells	\$ 2,500.00	item	1.0	\$ 2,500
2.9	Demolish existing headwalls and wingwalls	\$ 5,000.00	item	1.0	\$ 5,000
				Subtotal	\$ 9,036
3	Topsoil, Mulch and Turf				
3.1	Strip and Stockpile 150mm of topsoil from construction areas	\$ 5.60	cum	30.0	\$ 168
3.2	Replace and compact 150mm topsoil on construction areas	\$ 5.94	cum	12.6	\$ 75
3.3	Replace Turf	\$ 9.00	sqm	84.0	\$ 756
				Subtotal	\$ 999
4	Bulk Earthworks				
4.1	Excavate trench to reduced levels and backfill	\$ 5.45	cum	240.0	\$ 1,308
4.2	Trench Shoring	\$ 30.60	sqm	80.0	\$ 2,448
4.3	Trim and compact subgrade	\$ 2.43	sqm	200.0	\$ 485
4.4	Allowance for removal and replacement of unsuitable subgrade with imported select fill as bridging layer (5% of trim area x 300mm)	\$ 53.07	cum	3.0	\$ 159
4.5	Place and compact bedding layer (150mm thk)	\$ 55.00	cum	30.0	\$ 1,650
4.6	Backfill sides of culvert	\$ 8.20	cum	160.0	\$ 1,312
				Subtotal	\$ 7,363
5	Culverts Units				
5.1	Precast Box Culverts - Standard 1.2 x 1.2 Box Culvert Crown Units delivered to site	\$ 1,000.00	m	100.0	\$ 100,000
				Subtotal	\$ 100,000
6	Concrete Works				
6.1	RC Concrete Headwall foundation	\$ 526.00	cu.m	3.0	\$ 1,578
6.2	RC Concrete Headwall (200mm thick)	\$ 456.00	sq.m	10.0	\$ 4,560
6.3	Construct reinforced concrete wingwalls (200mm thick)	\$ 450.00	sqm.	2.4	\$ 1,080
6.4	Construct reinforced concrete apron (300mm thick with 600mm downturn)	\$ 330.00	cum.	14.2	\$ 4,673
6.5	Upright Kerb and Gutter	\$ 247.20	lin.m	20.0	\$ 4,944
6.6	1500mm wide reinforced concrete footpath	\$ 89.50	lin.m	10.0	\$ 895
				Subtotal	\$ 17,730
7	Scour Protection				
7.1	Geotextile Fabric	\$ 6.89	sqm	100	\$ 689
7.2	Allow for 800mm thick Rock Rip- Rap Armour	\$ 159.00	sqm	100	\$ 15,900
7.3	Allow for 400mm underlayer	\$ 68.90	sqm	100	\$ 6,890
				Subtotal	\$ 23,479
8	Roadworks				
8.1	30mm AC Concrete	\$ 17.00	sqm	120	\$ 2,039
8.2	7mm Primer Seal	\$ 5.87	sqm	120	\$ 705
8.3	150mm Basecourse	\$ 15.45	sqm	120	\$ 1,854
8.4	380mm Sub- base	\$ 61.80	sqm	120	\$ 7,416
8.5	Allowance to make smooth connection with existing road	\$ 206.00	lin.m	120	\$ 24,720
				Subtotal	\$ 36,734
9	Ancillary Items				
9.1	Replace Steel Handrails	\$ 220.00	m	8	\$ 1,760
				Subtotal	\$ 1,760
SUBTOTAL (excl. GST)					\$ 252,200
Muswellbrook Regional Factor					\$ 22,698
Engineering Design (4%)					\$ 10,088.02
Environmental Assessment and Approvals					\$ 15,000
Tender Preparation (0.6%)					\$ 1,513
Supervision and Contract Administration (2%)					\$ 5,044.01
Contingency (50%)					\$ 126,100
TOTAL (excl. GST)					\$ 432,644
Adopted TOTAL (excl. GST)					\$ 430,000

08 April 2019

PA1233 01 Muswellbrook FRMS&P



14. Questions for Next Meeting

15. Adjournment into Closed Council

In accordance with the Local Government Act 1993, and the Local Government (General) Regulation 2005, business of a kind referred to in Section 10A(2) of the Act should be dealt with in a Confidential Session of the Council meeting closed to the press and public.

16. Closed Council

RECOMMENDATION

Council adjourn into Closed Session and members of the press and public be excluded from the meeting of the Closed Session, and access to the correspondence and reports relating to the items considered during the course of the Closed Session be withheld unless declassified by separate resolution. This action is taken in accordance with Section 10A(2) of the Local Government Act, 1993 as the items listed come within the following provisions:

Moved: _____ Seconded: _____

16.1. Contract 2022-2023-0552 - Hill Street Road Works and Car Parking Upgrade - Tender Assessment

16.2. Contract 2022-2023-0555 - Tender Assessment - Bylong Valley Way CH5.9Km Road and Drainage Upgrade works

16.3. Request for Quotation - Golden Highway Asphalt Patching - Variation

16.4. State Government Welcome Concierge Pilot Program



16.5. Solar Panel Installation

16.6. Campbells Corner - Draft Deed of Settlement and Release

16.7. Northview Water Main Easement

16.8. Sale of Lot 18 Glen Munro Road, Muswellbrook

16.9. Investigation of Complaint

17. Resumption of Open Council

18. Closure

Date of Next Meeting: 28 March, 2023