



Ordinary meeting business paper

Wednesday, 16 February 2022

commencing 10.00 am

Rous Administration Centre (L4), 218-232 Molesworth Street, Lismore

Note: This meeting will be recorded and those in attendance should refrain from making any defamatory comments. There are to be no other recordings of this meeting without the prior authorisation of Council.

Phillip Rudd
General Manager

AGENDA

- 1. Opening of the meeting**
 - 2. General Manager report**
 - 2.1 Election of chairperson and deputy chairperson 1 - 7
 - 3. Acknowledgement of Country**

Council would like to show its respect and acknowledge the Traditional Custodians of the Land, of Elders past, present and emerging, on which this meeting takes place.
 - 4. Apologies and Leave of Absence**
 - 5. Confirmation of Minutes of previous meeting**
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 - 7. General Manager reports**
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Election of chairperson and deputy chairperson

Responsible Officer: General Manager (Phillip Rudd)

Recommendation

That Council:

1. Conduct an election for a chairperson and deputy chairperson consistent with the election process for chairpersons of county councils in the *Local Government Act 1993* and the *Local Government (General) Regulation 2021* and that:
 - i). If there is more than one nomination, council resolve the method of election (to be either by preferential ballot, ordinary ballot or open voting); and
 - ii). The result of the election (including the names of those elected) be declared at the meeting and that those elected hold office for two years.

Background

A chairperson of a county council must be elected in accordance with Schedule 8 of the *Local Government (General) Regulation 2021* ('LG Regulation').¹

For the purposes of this report, an election for a chairperson is to be held at the first meeting of Council after the term of the previous chairperson has ended.² This occurred on the date of the ordinary councillor elections, being 4 December 2021.³

A copy of Schedule 8 of the LG Regulation which prescribes the procedure to be followed to elect the chairperson is attached for information (Attachment 1). A summary of that process is set out in Attachment 2.

Election of a deputy chairperson – local rule

Council's Code of Meeting Practice contains a local rule that makes provision for the election of a deputy chairperson to occur at the same time and in the same manner as the 'annual' election of the chairperson. This local rule is for administrative convenience given that the *Local Government Act 1993* ('LG Act') does not make provision for the election of a deputy chairperson as it does for the election of a deputy mayor of a local council.

The reference to 'annual' in Council's Code of Meeting Practice is taken to be omitted to reflect the below mentioned amendments recently made to the LG Act and to give effect to the intention that the election of the deputy chairperson should ordinarily occur at the same time and in the same manner as that of the chairperson so that the terms of each position are in alignment.

Term of office – chairperson and deputy chairperson

Following amendments passed in May 2021 to the LG Act, the chairperson of a county council now holds office for a two year term.⁴ The office of chairperson commences on the day the person elected is declared to be elected, being the day of the council meeting at which the election is held

¹ Section 395 *Local Government (General) Regulation 2021* (NSW).

² Section 1(b) Part 1 Schedule 8 *Ibid*.

³ Section 391(3)(iii) *Local Government Act 1993* (NSW).

⁴ Section 391(2) *Ibid*.

by the returning officer.⁵ A vacancy occurs when the person's successor is declared to be elected to the office, or on the occurrence of a casual vacancy in the office.⁶

By virtue of Council's Code of Meeting Practice these arrangements also apply to the position of deputy chairperson.

Governance

This report has been prepared having regard to the requirements of the *Local Government Act 1993* and the *Local Government (General) Regulation 2021*.

Finance

The fees paid to members (including the chairperson) are in accordance with the 'Chairperson and member fees' policy and budget adopted in conjunction with the 2020/21 Operational plan. The policy provides that the fees payable to the chairperson and members are 100% of the maximum determined by the Local Government Remuneration Tribunal.

Legal

Refer to the 'Background' section of the report.

The General Manager is the returning officer for the purposes of holding the election for chairperson and deputy chairperson.⁷

Consultation

Not applicable.

Conclusion

Council elects a chairperson and deputy chairperson every second year. The election process for the chairperson is set out in Schedule 8 of the LG Regulation and Council has determined through its Code of Meeting Practice that that process will also apply to the election of the deputy chairperson.

Attachments

1. [Schedule 8 of the *Local Government \(General\) Regulation 2021*](#).
2. Summary of Schedule 8 LG Regulation election process.
3. Nomination forms (*copies will also be available at the meeting*).

⁵ Section 391(3)(a) Ibid.

⁶ Section 391(3)(b) Ibid.

⁷ Section 2 Part 1 Schedule 8 *Local Government (General) Regulation 2021* (NSW).

Attachment 2

Summary of election process

All references cited in the following tables relate to the *Local Government (General) Regulation 2021*.

General manager (or delegate) is the returning officer	Sch. 8 cl. 2
The general manager (or a person appointed by the general manager) is the returning officer.	
Nominations (Nomination forms enclosed)	Sch. 8 cl. 4
<ol style="list-style-type: none"> (1) A councillor may be nominated for election as chairperson/deputy chairperson without notice. (2) Nominations must be in writing by two or more councillors (one of whom may be the nominee) and include the nominee's written consent to the nomination. (3) Nominations are to be delivered or sent to the returning officer. (4) The returning officer is to announce the names of the nominees at the meeting at which the election is to be held. 	
Resolving method of election	Sch. 8 cl. 5
<p>One nomination The nominee is elected.</p> <p>More than one nomination Council must resolve whether the election is to proceed by:</p> <ol style="list-style-type: none"> (a) Preferential <i>ballot</i>* (Attachment 1 (Sch. 8 Part 3 clauses 10-13) refer to the green tables below), or (b) Ordinary <i>ballot</i>* or (Attachment 1 (Sch. 8 Part 2 clauses 6-9) refer to the red tables below), or (c) <i>Open voting</i>** (Attachment 1 (Sch. 8 Part 2 clauses 6-9) refer to the red tables below). <p>* <i>ballot</i> has its normal meaning of secret ballot. ** <i>open voting</i> means voting by a show of hands or similar means.</p>	

PREFERENTIAL BALLOT	
• Ballot-papers and voting	Sch. 8 cl. 11
<p>The ballot-papers are to contain the names of all the candidates. Place the numbers '1', '2' and so on against the names listed to indicate the order of preference for all the candidates.</p> <p>An informal ballot-paper is one that has not been initialled on the front by an election official (except where the ballot-paper bears the name of the council), or contains a mark or writing that, in the returning officer's opinion, would enable the elector to be identified (cl. 305(2); cl. 345(1)(b) and (c) and (5)).</p> <p>An informal ballot-paper must be rejected at the count.</p>	
• Count	Sch. 8 cl. 12
<ol style="list-style-type: none"> (1) If a candidate has an <i>absolute majority</i>* of first preference votes, that candidate is elected. (2) If not, the candidate with the lowest number of first preference votes is excluded and the votes on the unexhausted ballot-papers counted to the person are transferred to the candidates with second preferences on those ballot-papers. (3) A candidate who then has an absolute majority of votes is elected, but, if no candidate then has an absolute majority of votes, the process of excluding the candidate who has the lowest 	

PREFERENTIAL BALLOT

number of votes and counting each of his or her unexhausted ballot-papers to the candidates remaining in the election next in order of the voter's preference is repeated until one candidate has received an absolute majority of votes. That candidate is elected.

***absolute majority** in relation to votes, means a number that is more than one-half of the number of unexhausted formal ballot-papers.

• **Tied candidates**

Sch. 8 cl. 13

- (1) If, on any count of votes, there are 2 candidates in, or remaining in, the election and the numbers of votes cast for the 2 candidates are equal - **the candidate whose name is first chosen by lot is taken to have received an absolute majority of votes and is therefore taken to be elected.**
- (2) If, on any count of votes, there are 3 or more candidates in, or remaining in, the election and the numbers of votes cast for 2 or more candidates are equal and those candidates are the ones with the lowest number of votes on the count of the votes - **the candidate whose name is first chosen by lot is taken to have the lowest number of votes and is therefore excluded.**

Count: choosing by lot

Sch. 8 cl. 14

To choose a candidate by lot, the names of the candidates who have equal numbers of votes are written on similar slips of paper by the returning officer, the slips are folded by the returning officer so as to prevent the names being seen, the slips are mixed and one is drawn at random by the returning officer and **the candidate whose name is on the drawn slip is chosen.**

**ORDINARY BALLOT
OPEN VOTING**

• **Marking of ballot-papers**

Sch. 8 cl. 7

An informal ballot-paper is one that has not been initialled on the front by an election official (except where the ballot-paper bears the name of the council), or contains a mark or writing that, in the returning officer's opinion, would enable the elector to be identified (cl. 305(2); cl. 345(1)(b) and (c) and (5)).

An informal ballot-paper must be rejected at the count.

• **Count**

Sch. 8 cl. 8-9

Count: 2 candidates

- (1) If there are only 2 candidates, the candidate with the higher number of votes is elected.
- (2) If there are only 2 candidates and they are tied, **the one elected is to be chosen by lot.**

Count: 3 or more candidates

- (1) If there are 3 or more candidates, **the one with the lowest number of votes is to be excluded.**
- (2) If 3 or more candidates then remain, a further vote is to be taken of those candidates and **the one with the lowest number of votes from that further vote is to be excluded.**
- (3) If, after that, 3 or more candidates still remain, the procedure set out at (2) above is repeated until only 2 candidates remain.
- (4) A further vote is to be taken of the 2 remaining candidates:
 - (a) The candidate with **the higher number of votes is elected.**
 - (b) If the 2 candidates are tied, **the one elected is to be chosen by lot.**

(5) If at any stage during a count under (1) or (2) above, 2 or more candidates are tied on the lowest number of votes, the one excluded is to be chosen by lot.

Count: choosing by lot

Sch. 8 cl. 14

To choose a candidate by lot, the names of the candidates who have equal numbers of votes are written on similar slips of paper by the returning officer, the slips are folded by the returning officer so as to prevent the names being seen, the slips are mixed and one is drawn at random by the returning officer and the candidate whose name is on the drawn slip is chosen.

Result

Sch. 8 cl. 15

The result of the election (including the name of the elected chairperson and deputy chairperson) must be:

- (a) declared to the councillors at the council meeting at which the election is held by the returning officer, and
- (b) delivered or sent to the Chief Executive Officer and to the Secretary of Local Government NSW.

	ROUS COUNTY COUNCIL	NOMINATION FORM
		Chairperson
We nominate Councillor:		
.....		
for the position of Chairperson of Rous County Council.		
..... (name / signature)/...../2022	
..... (name / signature)/...../2022	
I consent to the nomination:		
..... Signature/...../2022	



NOMINATION FORM

Deputy Chairperson

We nominate Councillor:

.....

for the position of Deputy Chairperson of Rous County Council.

...../...../2022

(name / signature)

...../...../2022

(name / signature)

I consent to the nomination:

...../...../2022

Signature

Rous County Council minutes 20 October 2021

Responsible Officer: General Manager (Phillip Rudd)

1. OPENING OF THE MEETING

Meeting commenced at 1.03pm

The Chair extended a welcome to attendees.

Preamble

In accordance with clause 5.21 of the Local Government Act 1993, attendees at the Council meeting were advised by the Chair that the meeting was being live streamed. The following points were noted by the Chair:

- *All speakers should refrain from making any defamatory comments or releasing any personal information about another individual without their consent.*
- *Council accepts no liability for any damage that may result from defamatory comments made by persons attending meetings. All liability will rest with the individual who made the comments.*

This meeting must not be recorded by others without the prior written consent of the Council in accordance with Council's Code of Meeting Practice.

In attendance

Councillors (at Molesworth Street, Administration Office, Lismore, NSW):

Keith Williams (Chair), Sharon Cadwallader (Deputy Chair), Basil Cameron, Darlene Cook, Cate Coorey (arrived at 1.11pm), Vanessa Ekins, Sandra Humphrys, Robert Mustow.

Staff (at Molesworth Street, Administration Office, Lismore, NSW):

Phillip Rudd (General Manager), Guy Bezrouchko (Group Manager Corporate and Commercial), Helen McNeil (Group Manager People and Performance), Andrew Logan (Group Manager Planning and Delivery), Adam Nesbitt (Group Manager Operations), Natalie Woodhead-Tiernan (Finance Manager), Jonathan Patino (Finance Business Partner), Emma Hunter (Future Water Program Manager), Michael McKenzie (Future Water Project Manager), Noeline Smith (minute taker) and Luka Taylor (IT Support Officer).

2. ACKNOWLEDGEMENT OF COUNTRY

Council showed its respect and acknowledged the Traditional Custodians of the Land of all Elders past, present and emerging, on which this meeting took place.

3. APOLOGIES AND LEAVE OF ABSENCE

Nil.

4. CONFIRMATION OF MINUTES

i). **Ordinary Council meeting 16 June 2021**

RESOLVED [40/21] (Cadwallader/Mustow) that the minutes of the Ordinary Meeting held 16 June 2021 be confirmed as presented.

ii). **Extraordinary Council meeting 21 July 2021**

RESOLVED [41/21] (Cadwallader/Mustow) that the minutes of the Extraordinary Meeting held 21 July 2021 be confirmed as presented subject to change of 'Voting against' to be updated to 'Voting for' (as noted prior to resolution 39/21).

5. DISCLOSURE OF INTERESTS

Nil.

6. PRESENTATIONS

- Geoff Dwyer (Thomas Noble Russell) to present the Annual Financial Reports and Audit Report for year ending 30 June 2021 (*refer pp. 13-102*).

The Chair thanked Geoff Dwyer for his presentation, and on behalf of Council.

- Brian Wilkinson, Chairperson (Audit, Risk and Improvement Committee) will be in attendance to present on his report: 'Audit, Risk and Improvement Committee Performance Review: period 2020-2021' (*refer pp. 239-242*).

The Chair thanked Brian Wilkinson for his attendance and informative update on the review of the ARIC Committee.

7. GENERAL MANAGER REPORTS

i). **Council meeting schedule 2022**

RESOLVED [42/21] (Cadwallader/Cook) that Council determine its meeting schedule for 2022 with meetings to be held on the third Wednesdays commencing 10.00am at the Rous County Council Administration Office on: 16 February; 20 April; 15 June; 17 August; 19 October and 14 December.

8. GROUP MANAGER CORPORATE AND COMMERCIAL REPORTS

i). **Annual Financial Reports and Audit Report for year ending 30 June 2021**

RESOLVED [43/21] (Cook/Coorey) that Council:

1. In accordance with section 413 (2c) of the *Local Government Act 1993* and clause 215 of the *Local Government (General) Regulation 2005*, adopt the 2020/21 Audited Financial Reports and "Statement by Councillors and Management" for both the General-Purpose Financial Reports and the Special Purpose Financial Reports, with the Chairperson and Deputy Chairperson delegated to sign on behalf of Council.
2. Note that public notice for the presentation of the draft 2020/21 Financial Reports was issued on Wednesday, 13 October 2021 and invited both inspection and submissions.

3. Forward a copy of the 2020/21 Audited Financial Reports to the Office of Local Government.
4. Present the 2020/21 Audited Financial Reports to the public at Council's 20 October 2021 meeting.

ii). Quarterly Budget Review Statement for the quarter ending 30 September 2021

RESOLVED [44/21] (Mustow/Coorey) that Council note the results presented in the Quarterly Budget Review Statement as of 30 September 2021 and authorise the variations to the amounts from those previously estimated.

Voting against Crs Cook and Ekins

iii). Retail water customer account assistance

RESOLVED [45/21] (Cadwallader/Coorey) that Council in accordance with section 356 (1) of the Local Government Act 1993 and its 'Retail Water Customer Account Assistance' policy, approve financial assistance as listed in Table 1 of the report.

9. GROUP MANAGER PLANNING AND DELIVERY REPORT

i). Award of contract for the construction of an urban water supply bore – Clarence Moreton Basin Aquifer

RESOLVED [46/21] (Cook/Cameron) that Council:

1. Accept the tender submitted by 'The Impax Group Pty Ltd' in the amount of \$419,243 (incl GST) for the Construction of an Urban Water Supply Bore into the Clarence-Moreton Basin Aquifer at Wollongbar.
2. Approve an additional amount of \$42,000 (incl GST) as a contingency amount.

Voting against: Cr Cadwallader

ii). Award of contract for St Helena 600/525 Elevated Main Corrosion Repairs

RESOLVED [47/21] (Mustow/Cadwallader) that Council:

1. Accept the tender submitted by Advanced Concrete Engineering Pty Ltd in the amount of \$620,011 (incl GST) for the St Helena 600/525 - Elevated Main Corrosion Repairs.
2. Approve an additional amount of \$144,100 (incl GST) as a contingency amount.

iii). Review of developer servicing charges for secondary dwellings

RESOLVED [48/21] (Humphrys/Ekins) that:

1. Council notes the update on the assessment and review of secondary dwelling water consumption and the financial impact to Council.
2. The Development Servicing Plan for Bulk Water Supply 2016 methodology apply for all development applications lodged with constituent councils on or after 1 November 2021 for secondary dwelling bulk water developer contributions including granny flats.
3. Council notes that its decision of 19 August 2015 ([72/15]) will continue to have effect for relevant development applications lodged with constituent councils but not yet determined as at 31 October 2021 inclusive.

iv). Expansion of water fill station network update

RESOLVED [49/21] (Humphrys/Cameron) that Council:

1. Receive and note the update report.
2. Approve the two public access fill stations as a permanent water supply for the community.

v). Deferral of developer contributions – SHIFT project

RESOLVED [50/21] (Coorey/Cameron) that Council, under clause 2.5 of Council's Development Servicing Plan for Bulk Water Supply 2016, approve the deferral of the Rous County Council developer contributions, payable by The S.H.I.F.T Project Byron Incorporated in relation to DA10.2021.399.1.

10. GROUP MANAGER PLANNING AND DELIVERY REPORTS

i). Gallans Road reclassification

RESOLVED [51/21] (Cadwallader/Mustow) that Council note the advertisement for a period of 28-days ('Notice Period') regarding the proposed classification of the land known as and located at 57 Gallans Road, Ballina being Lot 57 in DP 1045745 (the 'land') as Operational Land, and:

- a) if no material submissions are received during the Notice Period, the land is classified as Operational Land for the purposes of section 31(2) of the *Local Government Act 1993* without a further report being made to the governing body; or
- b) if material submissions are received during the Notice Period, Council will consider those submissions at its February 2022 meeting.

11. POLICIES

i). Backflow prevention (revised)

RESOLVED [52/21] (Cameron/Coorey) that Council:

1. Revoke the current Backflow Prevention and Cross Connection Control policy dated 20 March 2013 and any policy revived as a result of that revocation.
2. Adopt the Backflow Prevention policy as attached to this report.
3. Approve a budget of \$1,250,000 funded by a loan from the 'Bulk Fund' to the 'Retail Fund', for the implementation of the Backflow Program.

ii). Work, Health and Safety (revised)

RESOLVED [53/21] (Cameron/Coorey) that Council:

1. Revoke the Work Health and Safety policy dated 20 February 2019 and any policies revived as a result of that revocation; and
2. Adopt the revised Work Health and Safety policy attached to the report.
3. WHS policy and procedures be incorporated within Councillors' Induction.

iii. Cyber Security (new)

RESOLVED [54/21] (Cadwallader/Cameron) that Council:

1. Revoke the Records Management policy dated 18 June 2014, and any policy revised as a result of that revocation; and
2. Adopt the draft Cyber Security policy attached to the report.

Cr Cameron left the meeting at 3.55pm and returned at 4.00pm.

Cr Cameron absent during voting.

iv. Human Resources – employment conditions (new)

RESOLVED [55/21] (Cadwallader/Mustow) that:

1. Revoke the existing 'Human Resources - Employment Conditions' policy dated 21 August 2019 and any policies revived as a result of that revocation.
2. Adopt the attached revised 'Human Resources - Employment Conditions' policy.

12. INFORMATION REPORTS

RESOLVED [56/21] (Ekins/Cook) that the following information reports be received and noted:

1. Audit, Risk and Improvement Committee - meeting update
2. Annual 'Model Code of Conduct Complaints Statistics'
3. Debt write-off information summary
4. Delivery program progress update 1 January to 30 June 2021
5. Demand management status report and scorecard 2020/2021
6. Disclosure of Interest Returns
7. Fluoride plant dosing performance report: April to June 2021
8. Investments September 2021
9. Local government election and term of chairperson and deputy chairperson
10. Reports/actions pending

FURTHER RESOLVED [57/21] (Ekins/Cook) that the former Water Production and Usage reports be included as part of future agenda 'Information reports'.

Councillors extended a special thank you to Cr Cook for her contribution to the ARIC Committee.

13. MATTERS OF URGENCY

Nil.

14. QUESTIONS ON NOTICE

Cr Ekins requested an update in relation to the Carrington Street sale.

General Manager advised response will be provided off-line (confidential matter).

15. CLOSE OF BUSINESS

There being no further business the meeting closed at 4.25pm.

Audit, Risk and Improvement Committee - appointment of Councillor Members

Responsible Officer: General Manager (Phillip Rudd)

Recommendation

That nominations for a primary and alternate member on the Audit, Risk and Improvement Committee be sought from Councillors (excluding the Chair).

Background

Council's [Audit, Risk and Improvement Committee Charter](#) provides that the Committee is constituted of the following 3 voting members only:

1. **Independent External Chair** – Four-year term – **Occupied** by Brian Wilkinson until September 2023;
2. **Independent External Member** – Four-year term – **Occupied** by Andrew MacLeod until April 2025;
3. **Councillor Member** (and alternate Councillor member) – Two-year term - **Vacant**.

The alternate Councillor member is appointed as a contingency for situations when the Councillor Member is unable to attend meetings.

The Charter provides that only Council can appoint members to the Committee and that taken collectively, the Committee is to have a broad range of skills and experience relevant to the operations of Council.

The current Committee Chair, Brian Wilkinson, is a former local council General Manager (Richmond Valley Council) with a strong governance skill set. The Independent Member, Andrew MacLeod, was appointed to the Committee in 2021 and has extensive experience in audit and risk management.

Governance

The Committee meets five times a year with meetings in 2022 to commence from 10am on 28 March, 23 May, 25 July, 17 October and 28 November.

The October meeting is reserved for consideration of Council's Financial Statements prior to being furnished to Council.

Committee Members can attend meetings in-person (at the Council Administration building) or remotely via Microsoft Teams. Both methods of attendance have been utilised by Committee Members previously (particularly in 2020 and 2021) without any impact to meetings.

A report on the key points of business and a copy of the minutes of each Committee meeting are, where possible, provided to the Council at the next Council meeting following that meeting of the Committee.

Committee members are covered by Council's Public Liability, Professional Indemnity and Voluntary Workers' Insurance (excluding medical expenses) subject to the applicable policy terms and conditions.

Finance

Rous County Council maintains a recurrent budget allocation that covers all costs associated with payment for two independent Committee members and contract internal auditors. For 2021/22 the budget allocation is \$31,700 distributed as follows:

Description	Rate	Budget allocation
Independent External Chair	\$494 per meeting (CPI increase annually)	\$2,470
Independent External Member	\$300 per meeting (CPI increase annually)	\$1,500
Travel expenses – Chair and Independent Member	Vehicle expenses: \$0.78 per km Accommodation expenses: as per ATO Tax Determination for applicable FY (currently TD 2021/6)	\$2,896
Internal audit services	-	\$24,834 (incl GST)

The Councillor member on the Committee does not receive a sitting fee, however actual travel and out-of-pocket expenses are reimbursed.

Legal

In September 2019 the Office of Local Government ('OLG') released for discussion its first iteration of the proposed 'New risk management and internal audit framework for local councils in NSW' ('Framework').

This Framework proposed regulatory changes and mandatory guidelines to complement amendments to the *Local Government Act 1993 (NSW)* ('LG Act') prescribing the appointment by councils of an Audit, Risk and Improvement Committee.

In August 2021, the OLG released revised draft mandatory guidelines and proposed regulatory changes and invited final submissions from councils by November 2021¹.

The amendments to the *Local Government Act 1993 (NSW)* requiring councils to appoint an Audit, Risk and Improvement Committee ('ARIC') have now commenced², however the foreshadowed amendments to the regulation and the mandatory guidelines have not yet been formalised.

The mandatory guidelines are expected to exclude councillors from holding a voting position on a council's Committee, but may allow an optional, non-voting councillor member to attend meetings.

The draft mandatory guidelines indicate that councils will have until 2027 to ensure its Committee membership complies with the mandatory guidelines.

Accordingly, a voting Councillor Member will continue to hold membership on Council's Committee for the next two-years, in accordance with the current Committee Charter, after which the Committee Charter will be updated to reflect composition requirements of the mandatory guidelines expected to be in-force by that time.

¹ Refer to the Office of Local Government's website for further information :
<https://www.olg.nsw.gov.au/councils/governance/risk-management-audit-and-internal-controls/risk-management-and-internal-audit-framework-for-local-councils-in-nsw/>

² [Section 428A](#) *Local Government Act 1993 (NSW)*.

Consultation

Not applicable.

Conclusion

The position of Councillor member and alternate Councillor member on Council's Audit, Risk and Improvement Committee are vacant, and nominations are sought from Councillors to fill these positions.

A vote will be taken in the event of more than one nomination being received for each position.

Nominations are to be made by Councillors by completing the nomination form provided at Attachment 1.

Attachment

1. Nomination forms (*copies also available at the meeting*)

	ROUS COUNTY COUNCIL	NOMINATION FORM 2022 Audit, Risk and Improvement Committee Councillor Member (primary)
We nominate:		
..... <i>(Councillor name)</i>		
for the position of councillor member (primary) of the Audit, Risk and Improvement Committee.		
..... <i>(Councillor/signature)</i>		
..... <i>(Councillor/signature)</i>		
Date:		
I consent to the nomination.		
..... <i>(Councillor/signature)</i>		
Date:		



NOMINATION FORM 2022
Audit, Risk and Improvement
Committee
Councillor Member (alternate)

We nominate:

.....
(Councillor name)

for the position of **councillor member (alternate)** of the Audit, Risk and Improvement Committee.

.....
(Councillor/signature)

.....
(Councillor/signature)

Date:

I consent to the nomination.

.....
(Councillor/signature)

Date:

Reconciliation Action Plan Advisory Group - appointment of Councillor Members

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That nominations for the appointment of Councillor Member and alternate Councillor Member as Chair of the Reconciliation Action Plan Advisory Group (RAPAG) be sought from councillors; Chair's duration being for the term of this Council.

Background

Reconciliation Action Plans (RAP) are practical plans of action built on relationships, respect and opportunities. They are designed to create social change and economic opportunities for Aboriginal and Torres Strait Islander people.

Rous is continuing the process of reconciliation with Aboriginal and Torres Strait Islander people through its RAP. The 2021-2023 Plan has recently been updated and endorsed by Reconciliation Australia (refer [Attachment 1](#)).

Our Innovate 2021-2023 RAP builds on the foundations and achievement of our initial Reflect RAP and aims to consolidate and increase our engagement with Aboriginal and Torres Strait Islander peoples. We will focus on our relationships with an intent to increase representatives in the Advisory Group to enable increased visibility and further opportunity to provide input into the work we do. Rous is continuing to encourage staff to become a part of the Advisory Group and learn and share alongside our Elders and community members.

Rocky Creek Dam, our supply network's principal source, sits on Widjabul Wiyabal country of the Bundjalung Nation. We acknowledge the Widjabul Wiyabal people's deep relationship with the land and water, and strongly value their traditional laws, knowledge and lessons about places and sustainability.

Reconciliation aims to restore ecological, cultural and social values that are unique to our region.

The RAP provided for the establishment of a RAP Advisory Group to assist staff with implementation of RAP actions.

The RAP Advisory Group is supported by a Terms of Reference (refer [Attachment 2](#)).

Membership

The RAP Advisory Group includes the following representatives:

- Traditional Custodians of Council catchment areas (2 members)
- Ngulingah and Jali Local Aboriginal Land Councils (1 member from each Council)
- The Bundjalung Elders Council (1 member)
- Rous County Council member (Chair)
- Community members (2)

Meeting attendees

- Consultant (1)
- Staff representatives as required.

Term

The term of membership of the RAP Advisory Group is one (1) year with the possibility of extension as Council develops future RAPs.

The Rous Councillor Member will chair the RAP Advisory Group meetings. Term of office for the Chair to be for the term of this Council. The alternate Councillor Member is appointed as a contingency for situations when the Councillor Member is unable to attend meetings.

Meeting schedule

Meetings will be held on Wednesdays commencing 10.00am (duration approx. 2 hrs) at Council's Administration Office or via video conferencing. The 2022 meeting schedule is: 23 March; 22 June; 24 August and 23 November.

Finance

The Operational Plan 2021/22 includes a budget of \$121,300 for Reconciliation initiatives, which covers costs for:

- Reconciliation Liaison Officer (1 x full time employee)
- RAP Advisory Group meetings, including sitting fees
- participation in NAIDOC and Reconciliation Week events; and
- cultural awareness training.

The Chair position on the committee is vacant. While the position is not a paid position, actual travel and out-of-pocket expenses are reimbursed.

Conclusion

The position of Chair on the Reconciliation Action Plan Advisory Group is vacant. It is proposed that nominations from Councillors be called to fill that vacancy. Term of office for the Chair to be for the term of this Council.

A vote will be taken in the event of more than one nomination being received for this position.

Nominations are to be made by Councillors by completing the nomination form provided at Attachment 3.

Attachment

1. Reconciliation Action Plan
2. Terms of Reference
3. Nomination form (*copy also available at the meeting*)

Innovate July 2021 – July 2023 Reconciliation Action Plan (RAP)

Cultural Warning

*With respect, Aboriginal and Torres Strait Islander people,
be aware that this document may contain images and
names of people who are deceased.*

Plan endorsed at Rous County Council meeting 21/04/2021
[Res 14/21], RAPAG meeting 24/05/2021 and
Reconciliation Australia, Endorsement, September 2021.



About the Artist

Rous County Council acknowledges Sheldon Harrington Snr (1961-2015) as the artist for the images used in this document. Sheldon Harrington Snr is of Widjabul descendent and an artist. Sheldon played a key role in the development and execution of joint on-ground projects that protect and enhance natural and cultural values in water supply catchment areas (Water Walks and Reconnecting to Country), in association with Rous County Council, the Widjabul people, and the local communities. Through his work with Rous County Council, Sheldon integrated sustainability principles with local Aboriginal culture and best management practice for catchment lands, fulfilling a responsibility to contribute culturally appropriate material and content including lore, location-based information (not including sensitive site information) and other key messages.

Sheldon Harrington Snr was a key contributor to the partnership established between Rous County Council and the Widjabul people, which was established primarily to improve cultural awareness and to stress the importance of land and water to Country and people. The contract between Widjabul Elders and Rous County Council primarily deals with the need for all of us to look after land and water as people. This working relationship is about Rous County Council acknowledging the ancestry, heritage, Country, identity, and language of the people from this Country. Rous County Council acknowledges Sheldon as a proud Bundjalung man who contributed greatly to our joint community education and reconciliation projects. We are working together for future generations to make Australia a better place.



Our Vision for Reconciliation

Rous County Council's vision for a united nation ensures that we stand together with Aboriginal and Torres Strait Islander peoples, and that any work we (as a country) do is built on respect and understanding, with a willingness to learn from each other. To do this we must listen and learn about the true past of Australia: the pain, the strength, the sadness, the innovation, the loss, and the incredible resilience of an amazingly rich and diverse culture of the traditional peoples of this continent.

As an organisation that works with water and land, we acknowledge and value Aboriginal and Torres Strait Islander sustainability practices in land and culture and know that we must work together with the Traditional Custodians of current and future catchment and the natural resource areas managed by Rous County Council.

Bundjalung people have lived in the region for many thousands of years in a sustainable relationship with the natural environment. The water catchment areas managed by Rous County Council are a part of the natural landscape that forms the identity, culture, spirituality, and resource base for the Widjabul wia-bal people of the Bundjalung nation. Despite the significant changes of the past 200 years, the Widjabul wia-bal people still maintain a responsibility and deep relationship with the land and water. Rous County Council acknowledges this relationship and deeply values their traditional laws, knowledge and lessons about places and sustainability. Reconciliation aims to restore ecological, cultural, and social values that are unique to our region.

Rous County Council conducts all business activities in accordance with its values of **Integrity**, **Commitment**, **Trust**, **Social Responsibility** and **Accountability**. As an organisation, Rous County Council believes in the value of strong community engagement and is proud to have a respected and productive relationship with the Traditional Custodians of the land on which Rous County Council catchments sit. In 2002, through a collaborative partnership between Rous County Council and Traditional Custodians, two environmental sustainability projects, *Reconnecting to Country* and *Water Walk*, were delivered.



Our business

Rous County Council (Rous) is a multi-purpose county council delivering bulk water, weed biosecurity and flood mitigation services. Rous also operates Richmond Water Laboratories located in Lismore, which provides professional sampling, testing and analysis of water quality to NSW councils, private entities, and the public. Our constituent councils are Lismore, Ballina, Byron, and Richmond Valley.

Bulk water: Rous is the regional water supply authority and provides bulk water from its principal supply source at Rocky Creek Dam, which services around 100,000 people.

Weed biosecurity: Rous is the local control authority for weed biosecurity. Its operations cover an area of more than a million hectares, covering the areas of Lismore, Ballina, Byron, Richmond Valley, Kyogle and Tweed Shire councils under service level agreements.

Our councillors:

Cr Keith Williams (Chair)	Ballina Shire Council nominee
Cr Sharon Cadwallader (Deputy Chair)	Ballina Shire Council nominee
Cr Basil Cameron	Byron Shire Council nominee
Cr Simon Richardson	Byron Shire Council nominee
Cr Darlene Cook	Lismore City Council nominee
Cr Vanessa Ekins	Lismore City Council nominee
Cr Sandra Humphrys	Richmond Valley Council nominee
Cr Robert Mustow	Richmond Valley Council nominee

Our staff:

Rous currently employs 90 staff, of which two identify as Aboriginal and/or Torres Strait Islander people.

RAPAG contact:

Guy Bezrouchko 02 6623 3800 guy.bezrouchko@rous.nsw.gov.au www.rous.nsw.gov.au

Rous County Council: Innovate 2021-2023

Overview

Our Reconciliation Action Plan (RAP) is lead from all levels within Rous, from councillors to management and staff who champion, participate, and believe strongly in all aspects of Reconciliation. Continuing from the previous Reflect Reconciliation Action Plan (RAP), Rous aims to work alongside the Aboriginal communities on whose Country they operate, and with Respect, move towards a more inclusive, mutually understood future.

Rous, together with our RAP Advisory Group members, have built a long-standing relationship over some years. We all agree to learn and share together for a better, stronger future in our region.

While the RAP is championed at all levels, the Group Manager Corporate and Commercial, Guy Bezrouchko, holds the designated role of RAP Secretary within Rous.

Reconciliation Action Plan Advisory Group (RAPAG)

Role of the RAPAG

The role of this group is to set the direction for reconciliation between Rous and the wider community. This group meets quarterly in Council Chambers, and once a year on Country. The agenda is set by the Chair and Secretary, however RAPAG members may make additions to the agenda at any time. The group works together in a respectful and passionate manner, and over the years, Rous has seen relationships grow between the community and its service, however, note there is much more to do.

Current members of the RAPAG:

Cr Vanesa Ekins	Chair (Rous)
Aunty Irene Harrington	Traditional Custodian of Council catchment area *
Roy Charles Gordon	Traditional Custodian of Council catchment area on behalf of Aunty June Gordon, Widjabul Elder *
Michael Ryan	Representative of the Bundjalung Elders Council *
CEO	Jali Local Aboriginal Land Council *
CEO	Ngulingah Local Aboriginal Land Council *

Guy Bezrouchko	Secretary (Rous)
Phillip Rudd	General Manager (Rous)
Emma Walke	Consultant *
Kris Cook	Community *
Mick Roberts	Community *
Anthony Acret	NRM Planning Coordinator (Rous staff)
Helen McNeil	Group Manager People and Performance (Rous staff)
Michael McKenzie	Future Water Strategy Project Manager (Rous staff)
Andrew Logan	Group Manager Planning and Delivery (Rous staff)

* *Aboriginal and/or Torres Strait Islander RAPAG member.*

From time to time, Rous invites other people with content-specific knowledge and staff of partnering organisations such as land councils, to the RAPAG meetings.

Our [Innovate 2021-2023 RAP](#) begins to build on the foundations, goals, challenges and wins of the past three years, and aims to consolidate and increase our engagement with Aboriginal and Torres Strait Islander peoples. We will focus on our relationships with an intent to increase representatives in the Advisory Group to ensure Aboriginal and Torres Strait Islander peoples from our recently increased areas have visibility and an opportunity to provide input into the work we do. Rous is continuing to encourage staff to become a part of the Advisory Group and learn and share alongside our Elders and community members.

New input will bring new ideas and new ways of doing things in the community.

Our focus areas

1. Respectful Community Involvement underpinned by shared understandings through cultural awareness and learning about our local Aboriginal and Torres Strait Islander peoples, lands, history and cultures.
2. Real Work on Land through understanding not only environmental aspects, but also cultural and historical aspects in the areas that Rous operates.
3. Strengthening the Tone of our relationship and building on our past successes through employment, training and commercial opportunities.

We are excited to aim higher and plan for new ideas and new input, which will strengthen Rous' place in the community alongside our Aboriginal and Torres Strait Islander partners towards reconciliation.

Key achievements



Relationships

To ensure that the work we are doing shows a strong respect for the history of the land and its people; strong relationships are vital. As an organisation, we want to work with the local Aboriginal peoples in reciprocal knowledge sharing, learning and celebrating national events and campaigns that benefit Aboriginal and Torres Strait Islander peoples; and forming partnerships built on mutual respect towards reconciliation.

Administration Traineeship Chelsea Hippie



Ngulingah Aboriginal Land Council Working on Country Skills and Knowledge Sharing

As the region's bulk water, weed biosecurity and flood mitigation authority, Rous has a role in managing the region's natural resources and share this responsibility with Ngulingah Local Aboriginal Land Council (LALC). In 2019-2020, we had the opportunity to collaborate with Ngulingah by supporting the development of Ngulingah LALC's WHS policies and procedures.

This brought our staff together to form strong relationships and to recognise the synergy between our organisations. We explored how Rous bush regeneration and weed biosecurity officers can collaborate with Ngulingah LALC rangers to share knowledge and ideas for mutual growth. In June 2019, these rangers were invited to present at the Lismore Biosecurity Forum hosted by Rous.

NAIDOC 2019

Rous attends the Lismore NAIDOC day held in the Lismore Showgrounds, traditional lands of the Widjabal/Wyabul peoples in this region. In 2019, we took our Richmond and Brunswick Water Catchment Trailer (a 3D working diorama of the region's water supply and dam system). Rous staff attended to speak with the community about the region's water supply and to experience NAIDOC more generally.

More than 100 people visited the trailer, talking with staff and interreacting with the display; even though it rained! Rous also worked with NAIDOC organisers to supply food and beverages to Elders in the Elders tent during the day. It was a great opportunity for Rous staff to meet and talk with Elders from Lismore and surrounds.

Action	Deliverable	Timeline	Responsibility	Status	Comment
Celebrate and participate in National Reconciliation Week (NRW) by providing opportunities to build and maintain relationships between Aboriginal and Torres Strait Islander peoples and other Australians.	Hold at least one internal event for NRW each year.	May 2022, 2023.	Group Manager Corporate and Commercial.		
	Register our NRW event via Reconciliation Australia's NRW website.	May 2022, 2023.	Group Manager Corporate and Commercial.		
	Support an external NRW event.	May 2022, 2023.	Communications and Engagement Coordinator.		
	Ensure our RAPAG participates in an external event to recognise and celebrate NRW.	May 2022, 2023.	Communications and Engagement Coordinator.		
	Extend an invitation to Aboriginal and Torres Strait Islander peoples to share their reconciliation experiences or stories.	May 2022, 2023.	Communications and Engagement Coordinator.		
	Encourage staff to participate in external events to recognise and celebrate NRW.	May 2022, 2023.	Communications and Engagement Coordinator.		
	Circulate NRW information to staff and invite comment/response.	May 2022, 2023.	Communications and Engagement Coordinator.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
Develop and maintain mutually beneficial relationships with Aboriginal and Torres Strait Islander peoples, communities and organisations to support positive outcomes.	Continue to implement the current engagement plan to work with our Aboriginal and Torres Strait Islander stakeholders.	Reviewed monthly: 2021 - 2023. Reported quarterly to RAPAG meeting: March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
	Discuss engagement plan at each RAPAG meeting to ensure the plans in place are still appropriate; change as required.	March 2022, 2023. July 2021, 2022. August 2021, 2022. November 2021, 2022. Review: March 2022, 2023.	Future Water Project Manager.		
	Meet with local Aboriginal and Torres Strait Islander organisations to develop guiding principles for future engagement.	March 2022.	Future Water Project Manager.		
	Explore and develop innovative ways to ensure Rous works collaboratively with Aboriginal knowledge-holders with the Rous' Future Water Strategy.	March 2022.	Future Water Project Manager.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
Raise internal and external awareness of our RAP to promote reconciliation across our business and sector.	Implement and review a strategy to communicate our RAP to all internal and external stakeholders.	30 June 2022.	Group Manager Corporate and Commercial.		
	Promote reconciliation through ongoing active engagement with all stakeholders.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022. December 2022.	Group Manager Corporate and Commercial.		
	Ensure the Innovate 2021-2023 RAP is included in Council's Community and Engagement Strategy.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022. December 2022.	Group Manager Corporate and Commercial.		
Promote positive race relations through anti-discrimination strategies.	Conduct a review of HR policies and procedures to identify existing anti-discrimination provisions and future needs.	Completed by: March 2022.	Human Resources Manager.		
	Develop, implement and communicate an anti-discrimination policy for our organisation.	Completed by: March 2022.	Group Manager Corporate and Commercial.		
	Engage with Aboriginal and Torres Strait Islander staff and/or Aboriginal and Torres Strait Islander advisors to consult on our anti-discrimination policy.	Completed by: March 2022.	Group Manager Corporate and Commercial.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Educate senior leaders on the effects of racism.	March 2022.	Group Manager Corporate and Commercial.		
Work with Elders and Custodians of the lands within the four constituent council areas on planning and projects of cultural significance.	Consult with Widjabul wiya-bal and Bundjalung Elders, local Aboriginal land councils, Aboriginal advisory groups, and relevant Aboriginal organisations on issues of cultural importance.	Reviewed quarterly at RAPAG meeting: March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
	Include local Aboriginal peoples, Elders and Traditional Custodians in planning and co-designing projects of cultural significance.	Reviewed quarterly at RAPAG meeting: March 2022, 2023. June 2021, 2022. August 2021, 2022. November 2021, 2022.	Future Water Project Manager.		



Respect

Rous' work relates to management of weed biosecurity and the management of the regional water supply. This work takes place on Aboriginal land. Rous acknowledges the importance of this land—traditionally, historically and culturally—to the Aboriginal people of the North Coast of NSW. We also acknowledge the unknown history of these lands, held by the communities on which our operations take place. Our plans may also be affected and have an effect on these lands and peoples. We understand the effects of history and colonisation on Aboriginal and Torres Strait Islander peoples and endeavour to ensure that these atrocities are not repeated now or in any future work we undertake.

Action	Deliverable	Timeline	Responsibility	Status	Comment
Engage employees in understanding the significance of Aboriginal and Torres Strait Islander cultural protocols, such as Welcome to Country and Acknowledgement of Country, to ensure there is a shared meaning.	Develop, implement, and communicate a cultural protocol document for Welcome to Country and Acknowledgement of Country.	December 2021.	Group Manager Corporate and Commercial.		
	Review and if required, build on the current list of key contacts for organising a Welcome to Country and maintaining respectful partnerships.	June 2022.	Group Manager Corporate and Commercial.		
	Include an Acknowledgement of Country at the commencement of important internal and external meetings.	Review quarterly at RAPAG meeting: March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Invite Aboriginal people and Traditional Custodians into our office to explain the significance of Welcome to Country and Acknowledgement of Country.	March 2022, 2023.	Group Manager Corporate and Commercial.		
	Where possible, invite Traditional Custodians to deliver a Welcome to Country at significant events.	Review quarterly at RAPAG meeting: March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	HR Manager.		
	Organise and display an Acknowledgment of Country plaque in our office/s or on our office building.	Review: June 2022, 2023.	HR Manager.		
Celebrate and recognise dates of significance with Aboriginal and Torres Strait Islander peoples.	Add Aboriginal and Torres Strait Islander dates of significance to Council calendars	13 February 2022, 2023. Anniversary of the Apology.	Group Manager Corporate and Commercial.		
	Promote local community events recognising dates of significance to all staff.	May 2022, 2023: National Sorry Day Reconciliation Week. July 2021, 2022: NAIDOC.	Communication and Engagement Coordinator.		
Provide opportunities for Aboriginal and Torres Strait Islander staff to engage with	Ensure all staff have the option to attend at least one NAIDOC Week event annually.	July 2021, 2022.	Group Manager Corporate and Commercial		

Action	Deliverable	Timeline	Responsibility	Status	Comment
their cultures and communities by celebrating NAIDOC Week.	In consultation with Aboriginal and Torres Strait Islander peoples, hold an internal or external NAIDOC Week event. - Provide interactive stall at Lismore NAIDOC. - Hold an event (i.e. movie night for staff during NAIDOC).	July 2021, 2022.	Communication and Engagement Coordinator.		
	Support an external NAIDOC Week community event.	July 2021, 2022.	Communications and Engagement Coordinator.		
	Contact our local NAIDOC Week Committee to discover events in our community.	June 2022, 2023.	Communications and Engagement Coordinator.		
	Review HR policies and procedures to ensure there are no barriers to staff participating in NAIDOC Week.	May 2022, 2023.	HR Manager.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
Engage employees in cultural learning opportunities to increase understanding and appreciation of Aboriginal and Torres Strait Islander cultures, histories and achievements.	Develop and implement a cultural awareness training strategy for our staff that defines cultural learning needs of employees in all areas of our business and considers various ways cultural learning can be provided (online, face to face workshops, or cultural immersion).	Review: August 2021. March 2022.	Group Manager Corporate and Commercial.		
	Investigate opportunities to work with local Traditional Owners and/or Aboriginal and Torres Strait Islander consultants to develop cultural awareness training.	Review: August 2021. March 2022.	Group Manager Corporate and Commercial		
	Provide opportunities for RAPAG members, RAP champions, HR managers and other key leadership staff to participate in cultural training.	March 2022, 2023.	Cultural Awareness Training Officer.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Promote Reconciliation Australia's Share Our Pride online tool to all staff.	Review quarterly after RAPAG meeting: April 2022. July 2021, 2022. September 2021, 2022. October 2021, 2022.	Group Manager Corporate and Commercial.		
	Walk on Country with Elders to learn from this knowledge and better understand the significance of the land.	March 2022, 2023.	Cultural Awareness Training Officer.		



Opportunities

In line with respect and relationships, our plan ensures that Rous embeds strategies within its Strategic Plan to ensure opportunities for employment, capacity building and knowledge-sharing are sought at all levels, within all programs. The opportunities listed in our plan are evidence of the work we are doing with the knowledge-holders and community toward reconciliation.

Action	Deliverable	Timeline	Responsibility	Status	Comment
Investigate opportunities to improve and increase Aboriginal and Torres Strait Islander employment outcomes within our workplace.	Develop and implement an Aboriginal and Torres Strait Islander Employment and Retention Strategy.	30 June 2022.	HR Manager.		
	Engage with existing Aboriginal and Torres Strait Islander staff to consult on employment strategies, including professional development.	March 2022, 2023. August 2021, 2022.	HR Manager.		
	Advertise all vacancies in Aboriginal and Torres Strait Islander media.	Reviewed quarterly: March 2022, 2023 August 2021, 2022.	HR Manager.		
	Review HR and recruitment procedures and policies to ensure there are no barriers to Aboriginal and Torres Strait Islander employees and future applicants participating in our workplace.	Review: June 2022, 2023.	HR Manager.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Develop an Aboriginal and Torres Strait Islander professional development strategy.	March 2022, 2023. August 2021, 2022.	HR Manager.		
	Include Aboriginal and/or Torres Strait Islander representation on recruitment and selection panels.	June 2022, 2023.	HR Manager.		
	Include in all job advertisements, 'Aboriginal and Torres Strait Islander peoples are encouraged to apply.'	Review: July 2021.	HR Manager.		
	Engage with external Aboriginal and Torres Strait Islander peoples and/or consultants to advise on recruitment, employment and retention strategies, including professional development.	Review: July 2021.	HR Manager.		
Investigate opportunities to incorporate Aboriginal and Torres Strait Islander supplier diversity within our organisation.	Review and update procurement policies and procedures to identify barriers to Aboriginal and Torres Strait Islander businesses to supply our organisation with goods and services.	Review: June 2022, 2023.	Procurement and Properties Coordinator.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Develop and communicate to staff a list of Aboriginal and Torres Strait Islander businesses that can be used to procure goods and services.	July 2021.	Group Manager Corporate and Commercial.		
	Develop one commercial relationship with an Aboriginal and/or Torres Strait Islander owned business.	July 2021.	Group Manager Corporate and Commercial.		
	Investigate Supply Nation membership.	Review: December 2021.	Group Manager Corporate and Commercial.		
Continue to develop and implement Aboriginal and Torres Strait Islander employment pathways.	Provide one traineeship within the RAP period.	Traineeship: January 2022.	HR Manager.		
	Develop at least one School-based traineeship within the RAP period.	School-based traineeship: July 2021.	Group Manager Corporate and Commercial.		
	Develop a recruitment strategy to ensure, where practicable, continuing employment opportunities for trainee positions, or pathways into other opportunities within Rous.	August 2021, 2022.	HR Manager.		
Investigate opportunities to increase pro bono activities.	Work with local Aboriginal land councils (LALCs) to identify areas of collaboration.	Identify opportunities: February 2022.	Group Manager Corporate and Commercial.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Deliver at least three pro bono activities within the period with LALCs.	July 2021.	Group Manager Corporate and Commercial.		



Governance tracking, progress and reporting

Action	Deliverable	Timeline	Responsibility	Status	Comment
RAPAG actively monitors RAP development and implementation of actions, tracking progress and reporting.	RAPAG oversees the development, endorsement and launch of the RAP.	July 2021.	Group Manager Corporate and Commercial.		
	Ensure Aboriginal and Torres Strait Islander peoples are represented on the RAPAG.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
	Review Terms of Reference for the RAPAG.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
	Continue to engage with key community stakeholders to join the RAPAG.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
	Meet at least four times per year to drive and monitor RAP implementation.	March 2022, 2023. June 2022, 2023. August 2021, 2022. November 2021, 2022.	Group Manager Corporate and Commercial.		
Report RAP achievements, challenges, and learnings to Reconciliation Australia.	Complete and submit the RAP Impact Measurement Questionnaire to Reconciliation Australia annually.	September 2021, 2022.	Group Manager Corporate and Commercial.		
	Investigate participating in the Workplace RAP Barometer.	May 2022.	Group Manager Corporate and Commercial.		

Action	Deliverable	Timeline	Responsibility	Status	Comment
	Continue to work with systems and capability needs to track, measure and report on RAP activities.	September 2021, 2022.	Group Manager Corporate and Commercial.		
Report RAP achievements, challenges, and learnings internally and externally.	Publicly report our RAP achievements, challenges, and learnings.	July 2022, 2023.	General Manager.		
	Use various outlets to report and promote Rous RAP achievements and challenges including: - RAPAG meetings - Rous Council meetings - Newsletters - Local 'grapevine' emails such as Lismore City Council - News stories, Koori Mail, etc.	Review quarterly at RAPAG meeting: March 2022, 2023. June 2022. August 2021, 2022. November 2021, 2022.	Communication and Engagement Coordinator.		
Review, refresh and update RAP.	Review, refresh, and update RAP based on learnings, challenges and achievements.	December 2022.	Group Manager Corporate and Commercial.		
	Send draft RAP to Reconciliation Australia for formal feedback and endorsement.	January 2023.	Group Manager Corporate and Commercial.		



Reconciliation Action Plan (RAP) Advisory Group Terms of Reference 2019/20

1. Purpose

To provide advice on the implementation of the RAP.

2. Footprint

Council provides potable water in bulk to the four constituent local government council areas of:

- i). Lismore (excluding Nimbin)
- ii). Ballina (excluding Wardell)
- iii). Byron (excluding Mullumbimby)
- iv). Richmond Valley (excluding land to the west of Coraki)

A map of the water supply network is provided at [Appendix 1](#).

3. Acknowledgements

- a) Council acknowledges that it operates on the land of the Bundjalung people and pays respect to Elders past, present and future.
- b) In particular, Council acknowledges the Widjabal/Wiyabal people of the Bundjalung Nation, the Traditional Custodians of Rocky Creek Dam, which is the primary source that supplies Council's network.
- c) Council has a longstanding relationship with the Traditional Custodians of Rocky Creek Dam and acknowledges their contributions to the many projects that have been undertaken.
- d) Representation of the Traditional Custodians of Rocky Creek Dam is considered integral to the RAP Advisory Group.

4. Role

- a) The RAP Advisory Group will act as a conduit between Council and Aboriginal and Torres Strait Islander communities within Council's footprint to oversee progress and support the outcomes in the RAP.
- b) To ensure Council effectively engages with Aboriginal and Torres Strait Islander communities in its current and future operations the RAP Advisory Group will provide advice on local Aboriginal consultation protocols.
- c) The RAP Advisory Group will not provide advice on local cultural heritage matters.

5. Membership and term

- a) The RAP Advisory Group will consist of up to eight members: one (1) Rous County Council (RCC) councillor and Aboriginal and Torres Strait Islander representatives from the Rous County Council footprint.
- b) The following groups will be invited to nominate one or two members for the inaugural RAP Advisory Group:
 - i) Traditional Custodians of Widjabal/Wiyabal catchment areas (two (2) members).
 - ii) The Bundjalung Elders Council (one (1) member).
 - iii) Nominated from representative of Ngulingah, Jali, Tweed/Byron and Bogal Local Aboriginal Land Councils.
 - iv) Other community representatives as invited.
- c) The term of membership of the RAP Advisory Group will be one year with the possibility of extension as Council develops future RAPs.
- d) The RCC Councillor will chair the RAP Advisory Group meetings.
- e) Where a member is unable to attend a meeting, the member may send an alternate member in their place. When doing so, the member must advise the RAP Advisory Group chair or secretariat of the alternate member's attendance prior to the meeting.

6. Code of Conduct

- a) Members must:
 - i) Adhere to Council's Code of Conduct (available on website).
 - ii) Make positive and constructive contributions during meetings.
 - iii) Treat others with respect at all times.
 - iv) Provide advice that is in the best interests of Aboriginal and Torres Strait Islander communities within Council's footprint.

7. Meeting procedures

- a) The RAP Advisory Group will meet twice annually with the possibility of additional meetings when necessary. Meetings will be held at Council premises, unless otherwise determined from time to time.
- b) Meeting duration will be approximately 90 minutes.
- c) RCC's Group Manager Corporate and Commercial will provide secretariat services to the RAP Advisory Group.
- d) Members must provide a notice of apology when unable to attend meetings. The apology must be provided prior to the start of the meeting through the secretariat of the RAP Advisory Group.

- e) Where specialist advice is required on a specific RAP action and the expertise is not available within the RAP Advisory Group, suitable stakeholder representatives may be invited to attend meetings on an as-needs basis.
- f) Other councillors or community members can attend meetings as observers. Notices, agenda and minutes of the meetings will be posted on Council's website.

8. RAP Advisory Group member sitting fee

- a) The following arrangements will apply upon attendance at meetings:
 - i) Traditional Custodian representatives will be paid \$200 sitting fee to attend each meeting. Travel expenses to attend meetings will be reimbursed at the appropriate kilometer rate in accordance with the Local Government (State) Award.
 - ii) Local Aboriginal Land Councils and the Bundjalung Elders Council will be paid \$200 sitting fee to attend each meeting. Travel expenses to attend meetings will be reimbursed at the appropriate kilometer rate in accordance with the Local Government (State) Award. Payments will be made to these entities and not to members.
 - iii) In line with local government policy, the Rous County Council Councillor on the RAP Advisory Group will not receive payment.
- b) All sitting fees and travel payments will only be made by EFT transfers.

9. Review of Terms of Reference


- a) Since this is the first time a RAP Advisory Group has been established, the Terms of Reference (ToR) and the group's composition will be reviewed prior to 30 June 2017 to allow for the group's input.
- b) Thereafter, the ToR will be reviewed every two years.

10. Reporting and accountability

- a) The RAP Advisory Group has no decision-making responsibilities. The group's role is to provide advice to Council on the implementation of the RAP.
- b) The advice of the RAP Advisory Group will be reported back to Council to inform planning and decision making.
- c) Council staff with responsibility for actions in the RAP will present progress reports at meetings as required.

Appendix 1: Water supply network



 <p>ROUS COUNTY COUNCIL</p>	<p>NOMINATION FORM 2022 Reconciliation Action Plan (RAP) Advisory Group Chair</p>
<p>We nominate:</p> <p>..... <i>(Councillor name)</i></p> <p>for the position of Chair of the RAP Advisory Group.</p> <p>..... <i>(Councillor/signature)</i></p> <p>..... <i>(Councillor/signature)</i></p> <p>Date:</p> <p>I consent to the nomination.</p> <p>..... <i>(Councillor/signature)</i></p> <p>Date:</p>	



NOMINATION FORM 2022
Reconciliation Action Plan
(RAP) Advisory Group
Alternate Chair

We nominate:

.....
(Councillor name)

for the position of alternate Chair of the RAP Advisory Group.

.....
(Councillor/signature)

.....
(Councillor/signature)

Date:

I consent to the nomination.

.....
(Councillor/signature)

Date:

Quarterly Budget Review Statement for the quarter ending 31 December 2021

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That Council note the results presented in the Quarterly Budget Review Statement as at 31 December 2021 and authorise the variations to the amounts from those previously estimated.

Background

The Integrated Planning and Reporting (IP&R) framework sets out minimum standards of reporting that will assist Council in adequately disclosing its overall financial position and to provide sufficient additional information to enable informed decision-making and enhance transparency.

The Quarterly Budget Review Statement (QBRs) is made up of a minimum of six key statements:

- (QBRs1) Statement by the Responsible Accounting Officer on Council's financial position
- (QBRs2) Budget Review Income and Expenses Statement
- (QBRs3) Budget Review Capital Budget
- (QBRs4) Budget Review Cash and Investments Position
- (QBRs5) Budget Review Contracts and Other Expenses
- (QBRs6) Budget Review Key Performance Indicators

For the information of Council, the original 2021/22 budget was adopted on 17 June 2021 as part of the 2021/22 Operational Plan and the 2017/22 Delivery Program.

Finance

(QBRs1) Report by Responsible Accounting Officer

The following statement is made in accordance with clause 203(2) of the *Local Government (General) Regulation 2021*.

"It is my opinion that the Quarterly Budget Review Statement of Rous County Council for the quarter ended 31 December 2021 indicates that Council's projected financial position at 30 June 2022 will be satisfactory at year end, having regard to the projected estimates of income and expenditure, the original budgeted income and expenditure and Council's short-term liquidity position."



Guy Bezrouchko
Responsible Accounting Officer

Table 1: Summary of proposed changes whole organisation – December 2021

BUDGET ITEMS	Original Budget 2021/22	2020/21 Carryovers	September	December	Projected Year End Result 2021/22
			30-Sep-21	31-Dec-21	
			Quarter	Quarter	
Operating Income					
Flood	950,100	0	1,129,900	32,000	2,112,000
Weeds	1,613,300	0	207,300	7,500	1,828,100
Retail	2,905,900	0	0	(8,200)	2,897,700
RWL	771,000	0	0	(3,300)	767,700
Commercial Property	270,900	0	0	(60,500)	210,400
Fleet	80,500	0	0	(9,000)	71,500
Bulk	19,961,700	0	0	(136,000)	19,825,700
TOTAL OPERATING INCOME	26,553,400	0	1,337,200	(177,500)	27,713,100
Operating Expenses					
Flood	1,713,000	162,700	1,276,500	32,000	3,184,200
Weeds	1,611,600	80,000	275,300	(44,400)	1,922,500
Retail	2,982,000	15,500	0	0	2,997,500
RWL	769,300	0	0	0	769,300
Commercial Property	381,900	0	0	0	381,900
Fleet	157,000	0	0	0	157,000
Bulk	23,247,000	737,500	383,700	50,000	24,418,200
TOTAL OPERATING EXPENSES	30,861,800	995,700	1,935,500	37,600	33,830,600
OPERATING RESULT	(4,308,400)	(995,700)	(598,300)	(215,100)	(6,117,500)
Exclude Depreciation	7,416,500	0	0	0	7,416,500
Cash Result	3,108,100	(995,700)	(598,300)	(215,100)	1,299,000
Add: Capital Income	5,766,400	0	(1,686,400)	850,000	4,930,000
Less: Capital Expense	36,878,000	803,100	461,500	(50,000)	38,092,600
Add: From/Less: (To) Reserve	31,417,900	1,798,800	2,751,500	(684,900)	35,283,300
Less: Loan Repayments	3,414,400	0	5,300	0	3,419,700
Estimated Cash Movement	0	0	0	0	0

Commentary on proposed adjustments – December 2021 (Table 1)

The following notes detail proposed budget variations on a fund basis as compared to the original budget and quarterly adjustments. For reporting purposes, only changes over \$5,000 are individually referenced.

Flood Mitigation Reporting Unit

(QBR2) Income & Expenses - Flood

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Interest Income / Sundry	6,700	0	0	0	6,700	2,100
Lismore Insurance Reimbursement	4,500	0	0	0	4,500	4,400
Operating Contributions	821,000	0	59,900	0	880,900	459,300
Operating Grants	117,900	0	1,070,000	32,000	1,219,900	103,800
Total Operating Income	950,100	0	1,129,900	32,000	2,112,000	569,600
Operating Expense						
Administration Expenses	203,600	0	0	0	203,600	99,300
Building/Depot Expenses	18,100	0	0	0	18,100	4,400
Fleet Hire Expense	71,600	0	0	0	71,600	33,500
Insurance	4,500	0	0	0	4,500	0
Salaries & Wages	449,900	0	0	0	449,900	266,700
Operations Purchases	280,300	162,700	1,276,500	32,000	1,751,500	367,500
Depreciation	685,000	0	0	0	685,000	363,500
Total Operating Expense	1,713,000	162,700	1,276,500	32,000	3,184,200	1,134,900
Operating Result	(762,900)	(162,700)	(146,600)	0	(1,072,200)	(565,300)
Less Depreciation	685,000	0	0	0	685,000	363,500
Operating Result Excl. Non Cash	(77,900)	(162,700)	(146,600)	0	(387,200)	(201,800)
Add Capital Income	0	0	0	0	0	0
Less Capital Expenses	150,300	0	0	0	150,300	30,800
Transfer from/(to) Reserve	228,200	162,700	146,600	0	537,500	232,600
Net Cash Movement	0	0	0	0	0	0

Fish Habitat Action Grant - Coraki Riparian Project

Rous has been advised of its success in obtaining a *Fish Habitat Action Grant* from NSW Department of Primary Industries (DPI) for riverbank restoration work along the Richmond River at Coraki.

The grant known as the *Coraki Riparian Project* forms part of Rous' commitment to improving water quality of the Richmond River through the current Richmond River Coastal Zone Management Plan.

A key feature of the project, at Windsor Park south of Coraki village, is enhancing access to the river and improving fish habitat through a combination of weed control and tree planting along a 1.2 km riparian zone length. Another feature of the project will be improved amenity of existing walking tracks.

The project involves working with First Nations landowners at the site (Bogal Local Aboriginal Land Council and Bundjalung Aboriginal Corporation) and other community stakeholders and will benefit the Richmond River estuary as a whole. Rous will be coordinating work on this project and prepare a restoration plan and oversee onsite works which are due to commence early in 2022.

The project has total value of \$112,200 and will be implemented over a three-year period. DPI will provide funding of \$40,000, with \$32,000 to be received in the current financial year and the balance of \$8,000 in 2022/23.

Rous will contribute matching funding of \$40,000 which is available from Flood Mitigation Reserve which is forecast to have a balance of \$561,600 as at 30 June 2022. Rous and Richmond Valley Council will also contribute \$32,200 (in-kind) through project management and site maintenance over the three-year period.

To account for the cash component of this project for 2021/22, the following adjustment is required:

Operating Income	Grants and Contributions	DPI – Coraki Restoration Project	\$32,000
Operating Expenditure	Materials and Contractors		(\$32,000)
		Impact on Cash Surplus	\$0

The Long-Term Financial Plan will be updated to account for the remaining cash component of this project, as per below.

		2022/23	2023/24	2024/25
Operating Income	Grants and Contributions	\$8,000	\$0	\$0
Operating Expenditure	Materials and Contractors	(\$36,000)	(\$6,000)	(\$6,000)
Reserves	Flood Mitigation Reserve	\$28,000	\$6,000	\$6,000
	Impact on Cash Surplus	\$0	\$0	\$0

Weed Biosecurity Reporting Unit

(QBR2) Income & Expenses - Weeds

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Interest Income / Sundry	10,200	0	0	0	10,200	4,600
Operating Contributions	825,100	0	0	0	825,100	412,600
Operating Grants	778,000	0	176,300	7,500	961,800	206,400
Private Works Income	0	0	31,000	0	31,000	11,200
Total Operating Income	1,613,300	0	207,300	7,500	1,828,100	634,800
Operating Expense						
Administration Expenses	327,400	0	0	0	327,400	162,000
Building/Depot Expenses	19,100	0	0	0	19,100	7,500
Fleet Hire Expense	155,800	0	0	15,000	170,800	85,600
Salaries & Wages	934,400	80,000	71,300	40,600	1,126,300	499,700
Operations Purchases	147,900	0	204,000	(100,000)	251,900	60,600
Depreciation	27,000	0	0	0	27,000	13,200
Total Operating Expense	1,611,600	80,000	275,300	(44,400)	1,922,500	828,600
Operating Result	1,700	(80,000)	(68,000)	51,900	(94,400)	(193,800)
Less Depreciation	27,000	0	0	0	27,000	13,200
Operating Result Excl. Non Cash	28,700	(80,000)	(68,000)	51,900	(67,400)	(180,600)
Add Capital Income	0	0	0	0	0	0
Less Capital Expenses	85,000	25,000	0	0	110,000	100
Transfer from/(to) Reserve	56,300	105,000	68,000	(51,900)	177,400	180,700
Net Cash Movement	0	0	0	0	0	0

Miconia – Weed surveillance and eradication

In December 2021, Rous received notification from Queensland Department of Agriculture and Fisheries (QDAF) that it had been successful in obtaining further grant funding to assist with surveillance and eradication of Miconia weed (*Miconia calvenscens*).

The project involves undertaking an annual survey at identified medium and low risk locations, and completing necessary eradication actions, associated engagement activities, undertaking any required trace works and supplying GPS track files to QDAF.

Key to this project is the employment of a Weed Biosecurity Officer that has been identified as an Aboriginal and Torres Strait Islander (ATSI) role. Existing staff will provide assistance during the first year of the project to complete the required milestones by the end of the 2021/22 financial year.

Total funding from QDAF is \$298,000 to be received over a three-year period to 30 June 2024 upon the successful completion of annual milestones. The project is 100% funded by grant funds.

To account for the cash component of this project for 2021/22, the following adjustment is required:

Operating Income	Grants and Contributions	QDAF – Miconia	\$98,000
Operating Expenditure	Salaries, Fleet Expenses and Operational Purchases		(\$98,000)
		Impact on Cash Surplus	\$0

The Long-Term Financial Plan will be updated to account for the remaining cash component of this project, as per below.

		2022/23	2023/24
Operating Income	Grants and Contributions	\$99,000	\$101,000
Operating Expenditure	Salaries, Fleet Expenses and Operational Purchases	(\$99,000)	(\$101,000)
	Impact on Cash Surplus	\$0	\$0

Frogbit – Chinderah infestation

In December 2021, Rous was notified of its success in obtaining further funding from NSW Department of Primary Industries (DPI) to manage and monitor the Frogbit weed infestation discovered near Chinderah.

Frogbit (*Limnobium laevigatum*) is listed as a State-wide prohibited matter and is classified as a high priority weed under the NSW Weed Action Program which is an NSW Government initiative to reduce the impacts of weeds through the implementation of the NSW Invasive Species Plan and the NSW Biosecurity Strategy.

Additional funding from NSW DPI is \$10,000 with the project to be completed by 30 June 2022. There is no requirement for Rous to contribute matching funding. Note: Rous is currently completing an existing project on Frogbit in partnership with NSW DPI.

To account for the cash component of this project for 2021/22, the following adjustment is required:

Operating Income	Grants and Contributions	NSW DPI – Frogbit	\$10,000
Operating Expenditure	Salaries and Operational Purchases		(\$10,000)
		Impact on Cash Surplus	\$0

Tropical Soda Apple (TSA) Engagement

Rous has an existing memorandum of understanding (MoU) with Kempsey Shire Council who operate as an administrator for NSW Department of Primary Industries (DPI) to undertake targeted landholder engagement and control activities for Tropical Soda Apple (*Solanum viarum*).

While the MoU agreement covers the five-year commitment to TSA Engagement, funding on a per year basis is subject to an annual agreement by the two parties. Previously additional funding for this project was provided by North Coast Local Land Services (NCLLS) in addition to the funding from DPI.

NSW DPI has confirmed its funding for the financial year at \$35,000 however the previous funding from NCLLS will no longer be provided.

The program involves assisting landowners by conducting additional property inspections across TSA affected areas; providing best practice TSA control advice and raising awareness of the threats of TSA if not managed. The project aims to deliver workshops in targeted areas to providing engagement with identified landholders, encouraging collaboration, co-ordination of control programs and good farm hygiene. This funding will be used to employ a TSA engagement officer for two days per week over a twelve-month period.

For the 2021/22 financial year Rous budgeted for the same level of revenue (\$76,000) to be available as provided in the previous year. As this level of funding will no longer be received the following reduction to both the forecast grant revenue and the operating expenditure for this project is required:

Operating Income	Grants and Contributions	NSW DPI – TSA Engagement	(\$41,000)
Operating Expenditure	Salaries and Wages		\$41,000
		Impact on Cash Surplus	\$0

The Long-Term Financial Plan will be updated to account for the reduced level of funding remaining for this project, as per below. A small increase of \$2,000 had been previously forecast for the remaining three years of the program.

		2022/23	2023/24	2024/25
Operating Income	Grants and Contributions	\$43,000	\$43,000	\$43,000
Operating Expenditure	Salaries, Fleet Expenses and Operational Purchases	(\$43,000)	(\$43,000)	(\$43,000)
	Impact on Cash Surplus	\$0	\$0	\$0

Weeds Action Program 2021-2022

Rous' Weed Biosecurity budget relies heavily on annual funding received from North Coast Local Land Services (NCLLS) through the NSW Weeds Action Program 2020-2025 (WAP).

For 2021/22 the operational budgets were prepared on the assumption of a 9.3% increase on funds received the previous year. Due to a decision by the State Government in October 2021 to reduce the level of investment for weed management this financial year, Council has been advised by NCLLS that there will be a freeze in funding across New South Wales for the 2021/22 financial year.

As such Rous will receive the same level of funding as the previous financial year, a decrease of \$59,500 from the expected amount of \$702,000 to \$642,500. This reduction in revenue is required to be made in the 2021/22 financial year.

The funding agreement requires Rous to contribute a specified amount of additional funds towards the program in accordance with the agreed action plan. This has resulted in a decrease in the agreed Rous commitment of \$51,900 from \$676,900 to \$625,000. When combined with the reduction in expenditure due to the revised grant revenue received this represents a reduction in planned expenditure of \$111,400.

As Rous has several grant funded projects which accommodate existing resource levels, this provides an opportunity to return \$51,900 to the Weeds Biosecurity Reserve.

Operating Income	Grants and Contributions	NCLLS - WAP	(\$59,500)
Operating Expenditure	Salaries and Contractors		\$111,400
Reserves	Weeds Biosecurity Reserve		(\$51,900)
Impact on Cash Surplus			\$0

The Long-Term Financial Plan will be updated to reflect this freeze in funding for the balance of this funding agreement concluding in 2024/25 with an assumed CPI increase from then on. While this is a conservative position to adopt, we will continue to advocate for CPI increases on funding.

Retail Reporting Unit

(QBR2) Income & Expenses - Retail

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Water Sales	2,880,600	0	0	0	2,880,600	1,627,100
Interest Income / Sundry	25,300	0	0	(8,200)	17,100	15,000
Total Operating Income	2,905,900	0	0	(8,200)	2,897,700	1,642,100
Operating Expense						
Administration Expenses	223,100	0	0	0	223,100	92,600
Administration - Bulk Water Cost	1,779,100	0	0	0	1,779,100	889,300
Building/Depot Expenses	1,600	0	0	0	1,600	0
Fleet Hire Expense	83,500	0	0	0	83,500	40,000
Salaries & Wages	555,500	0	0	0	555,500	299,800
Operations Purchases	138,800	15,500	0	0	154,300	83,800
Depreciation	200,400	0	0	0	200,400	163,300
Total Operating Expense	2,982,000	15,500	0	0	2,997,500	1,568,800
Operating Result	(76,100)	(15,500)	0	(8,200)	(99,800)	73,300
Less Depreciation	200,400	0	0	0	200,400	163,300
Operating Result Excl. Non Cash	124,300	(15,500)	0	(8,200)	100,600	236,600
Add Capital Income	0	0	0	0	0	1,400
Less Capital Expenses	1,517,700	0	10,000	0	1,527,700	5,600
Transfer from/(to) Reserve	1,393,400	15,500	10,000	8,200	1,427,100	(232,400)
Net Cash Movement	0	0	0	0	0	0

Interest on Investments

The original budget for investment interest of \$20,200 was based on a forecast average held balance of \$1.3M with a 1.5% rate of return. The actual rate of return has decreased to 0.59% and the portfolio size of funds has held steady at \$1.3M.

Based on these factors and considering anticipated cash flow requirements, the adjusted forecast investment interest for 30 June 2022 is expected to reach \$12,000. A budget reduction of \$8,200 is required to revenue and the Retail Water reserve.

To account for this change in 2021/22, the following adjustment is required:

Operating Income	Investment Revenue	Interest on Investments	(\$8,200)
Reserves	Retail Water Reserve		\$8,200
		Impact on Cash Surplus	\$0

Richmond Water Laboratory Reporting Unit

(QBR2) Income & Expenses - Richmond Water Laboratory

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Laboratory Sales	766,000	0	0	0	766,000	491,100
Interest Income / Sundry	5,000	0	0	(3,300)	1,700	900
Total Operating Income	771,000	0	0	(3,300)	767,700	492,000
Operating Expense						
Administration Expenses	44,700	0	0	0	44,700	23,000
Building Expenses	51,000	0	0	0	51,000	19,200
Fleet Hire Expense	15,500	0	0	0	15,500	10,700
Salaries & Wages	434,200	0	0	0	434,200	202,300
Operations - Materials & Contractors	177,500	0	0	0	177,500	166,500
Operations - Licences/Accreditation	26,200	0	0	0	26,200	19,300
Operations - Equipment	5,000	0	0	0	5,000	1,100
Depreciation	15,200	0	0	0	15,200	9,800
Total Operating Expense	769,300	0	0	0	769,300	451,900
Operating Result	1,700	0	0	(3,300)	(1,600)	40,100
Less Depreciation	15,200	0	0	0	15,200	9,800
Operating Result Excl. Non Cash	16,900	0	0	(3,300)	13,600	49,900
Less Capital Expenses	44,100	0	0	0	44,100	0
Transfer from/(to) Reserve	27,200	0	0	3,300	30,500	(49,900)
Net Cash Movement	0	0	0	0	0	0

Interest on Investments

The original budget for investment interest of \$5,000 was based on a forecast average held balance of \$396,000 with a 1.5% rate of return. The actual rate of return has decreased to 0.59% and the portfolio size of funds remains consistent with the budget balance.

Based on these factors and considering anticipated cash flow requirements, the adjusted forecast investment interest for 30 June 2022 is expected to be \$1,700. A budget reduction of \$3,300 is required to revenue and the RWL reserve.

To account for this change in 2021/22, the following adjustment is required:

Operating Income	Investment Revenue	Interest on Investments	(\$3,300)
Reserves	RWL Reserve		\$3,300
		Impact on Cash Surplus	\$0

Sales are currently tracking above budget and finance staff will review the financial forecast and update the forecast result in the March 2022 QBR2.

Property Reporting Unit

(QBR2) Income & Expenses - Commercial Properties

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Interest Income / Sundry	9,900	0	0	0	9,900	2,900
Property Income	261,000	0	0	(60,500)	200,500	111,500
Total Operating Income	270,900	0	0	(60,500)	210,400	114,400
Operating Expense						
Administration Expenses	50,800	0	0	0	50,800	25,500
Building - Maintenance	108,600	0	0	0	108,600	60,100
Building - Lease	74,700	0	0	0	74,700	36,000
Perradenya Estate Operations	64,000	0	0	0	64,000	31,800
Salaries & Wages	20,900	0	0	0	20,900	9,900
Operations Purchases	0	0	0	0	0	0
Depreciation	62,900	0	0	0	62,900	28,900
Loss on Sale	0	0	0	0	0	0
Total Operating Expense	381,900	0	0	0	381,900	192,200
Operating Result	(111,000)	0	0	(60,500)	(171,500)	(77,800)
Less Depreciation	62,900	0	0	0	62,900	28,900
Operating Result Excl. Non Cash	(48,100)	0	0	(60,500)	(108,600)	(48,900)
Add Capital Income	1,686,400	0	(1,686,400)	850,000	850,000	850,000
Less Capital Expenses	2,551,000	29,800	0	0	2,580,800	39,700
Transfer from/(to) Reserve	912,700	29,800	1,686,400	(789,500)	1,839,400	(761,400)
Net Cash Movement	0	0	0	0	0	0

Sale of Investment Property

An unsolicited expression of interest was received regarding the purchase of Council's properties on the corner of 56-60 Carrington Street and 31-33 Conway Street, Lismore NSW 2480 (the 'Old Council Chambers') on 15 April 2021. This was reported to Council in a confidential report along with a recommendation to enter direct negotiations for the sale of these properties together. [D21/18922].

In compliance with Council's 'Land Management' policy, an independent valuation was obtained to establish the current market value of the property. This resulted in a valuation of \$825,000 and a further recommendation that the property be sold for no less than \$800,000.

A strategic review of commercial properties was first reported to Council at its meeting on 20 June 2018 and has been an ongoing consideration for management. Building 1 was purchased by Council sometime during the 1950-60's while building 2 was purchased in the 1980's and the two buildings are connected by means of a common internal stairwell and amenities. Management has assessed the properties as having a limited strategic value to Council.

The sale of the Old Council Chambers settled for \$850,000 on 23 November 2021. For the 2021/22 financial year revenue was forecast at \$81,300 with \$20,800 received prior to the sale, requiring an adjustment to decrease operating revenue by \$60,500.

To account for this change in 2021/22 on a cash basis, the following adjustment is required:

Operating Revenue	Rental – Investment Properties	Rental Income	(\$60,500)
Capital Revenue	Proceeds from Sale – Investment Properties	Proceeds	\$850,000
Reserves	Commercial Property Reserve		(\$789,500)
		Impact on Cash Surplus	\$0

On an accounting basis the sale of this property will result in a gain on disposal of \$50,000 being reported in the financial statements to 30 June 2022. This is due to the sale price of \$850,000 exceeding the assets carrying value of \$795,000 and less professional fees.

This change has been updated in the LFTP to reflect the change to operating revenue and expenditure (for example rates, insurance, and repairs).

The only remaining commercial property asset owned by Council is the building at 20 Conway Street, Lismore.

Fleet Reporting Unit

(QBR2) Income & Expenses - Fleet

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Interest Income / Sundry	80,500	0	0	(9,000)	71,500	29,100
Total Operating Income	80,500	0	0	(9,000)	71,500	29,100
Operating Expense						
Fleet Operations	514,800	0	0	0	514,800	201,300
Fleet Hire Income	(909,200)	0	0	0	(909,200)	(454,100)
Salaries & Wages	111,400	0	0	0	111,400	28,000
Operations Purchases	0	0	0	0	0	1,800
Depreciation	440,000	0	0	0	440,000	170,600
Total Operating Expense	157,000	0	0	0	157,000	(52,400)
Operating Result	(76,500)	0	0	(9,000)	(85,500)	81,500
Less Depreciation	440,000	0	0	0	440,000	170,600
Operating Result Excl. Non Cash	363,500	0	0	(9,000)	354,500	252,100
Add Capital Income	0	0	0	0	0	0
Less Capital Expenses	454,000	0	0	0	454,000	61,200
Transfer from/(to) Reserve	90,500	0	0	9,000	99,500	(190,900)
Net Cash Movement	0	0	0	0	0	0

Interest on Investments

The original budget for investment interest of \$14,000 was based on a forecast average held balance of \$921,000 with a 1.5% rate of return. The actual rate of return has decreased to 0.59% and the portfolio size of funds has remained at \$1.3M due to the extended lead time on acquiring new motor vehicles.

Based on these factors and considering anticipated cash flow requirements, the adjusted forecast investment interest for 30 June 2022 is expected to be \$5,000. A budget reduction of \$9,000 is required to revenue and the Fleet reserve.

To account for this change in 2021/22, the following adjustment is required:

Operating Income	Investment Revenue	Interest	(\$9,000)
Reserves	Fleet Reserve		\$9,000
		Impact on Cash Surplus	\$0

Planned purchases of motor vehicles are experiencing market delays which will be reviewed in the March 2022 QBR2 and updated accordingly.

Bulk Water Reporting Unit

(QBR2) Income & Expenses - Bulk

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Operating Income						
Water Sales	19,436,400	0	0	0	19,436,400	9,718,200
Interest Income / Sundry	349,100	0	0	(136,000)	213,100	101,500
Property Income	18,000	0	0	0	18,000	9,800
Operating Contributions	5,000	0	0	0	5,000	5,000
Operating Grants	151,000	0	0	0	151,000	0
Profit on Sale	2,200	0	0	0	2,200	500
Total Operating Income	19,961,700	0	0	(136,000)	19,825,700	9,835,000
Operating Expense						
Administration Expenses	535,600	60,000	0	0	595,600	362,600
Administration - Retail Water Cost	(1,779,100)	0	0	0	(1,779,100)	(889,300)
Finance Costs	1,659,900	0	(19,600)	0	1,640,300	531,400
Building/Depot Expenses	919,100	0	0	0	919,100	257,000
Fleet Hire Expense	568,300	0	0	0	568,300	252,000
Training & Staff	320,300	0	0	0	320,300	107,800
Insurance	273,000	0	0	0	273,000	290,100
Members Expenses	168,600	0	0	0	168,600	44,700
Salaries & Wages	7,454,300	0	381,300	(30,000)	7,805,600	3,341,100
Operations Purchases	7,141,000	677,500	22,000	80,000	7,920,500	2,508,800
Depreciation	5,986,000	0	0	0	5,986,000	3,313,100
Loss on Sale	0	0	0	0	0	0
Total Operating Expense	23,247,000	737,500	383,700	50,000	24,418,200	10,119,300
Operating Result	(3,285,300)	(737,500)	(383,700)	(186,000)	(4,592,500)	(284,300)
Less Depreciation	5,986,000	0	0	0	5,986,000	3,313,100
Operating Result Excl. Non Cash	2,700,700	(737,500)	(383,700)	(186,000)	1,393,500	3,028,800
Add Capital Income	4,080,000	0	0	0	4,080,000	2,524,200
Less Capital Expenses	32,075,900	748,300	451,500	(50,000)	33,225,700	11,980,800
Transfer from/(to) Reserve	28,709,600	1,485,800	840,500	136,000	31,171,900	6,450,900
Less Loan Repayments	3,414,400	0	5,300	0	3,419,700	23,100
Net Cash Movement	0	0	0	0	0	0

Interest on Investments

The original budget for investment interest of \$293,000 was based on a forecast average held balance of \$15M with a 1.5% rate of return. The actual rate of return has decreased to 0.59% and the portfolio size of funds held has remained at \$31.5M but expected to decrease as substantial capital works programs continue.

Based on these factors and considering anticipated cash flow requirements, the adjusted forecast investment interest for 30 June 2022 is expected to reach \$157,000. A budget reduction of \$136,000 is required to revenue and the Bulk reserve.

To account for this change in 2021/22, the following adjustment is required:

Operating income	Investment Revenue	Interest on Investments	(\$136,000)
Reserves	Bulk Water Reserve		\$136,000
		Impact on Cash Surplus	\$0

Hydraulic capacity assessment

Funding of \$50,000 was allocated in the 2021/22 financial year to deliver the Integrated Planning & Reporting goal of “Strategy and Planning”, and Activity 2.1.5.4 to “Undertake hydraulic capacity assessment of water distribution network to develop augmentation capital works plan”.

In finalising the tender documentation scope, a need to update the peak day forecast throughout the entire network has been identified. The scope of the project has been expanded to include modelling of other potential treated water sources, relating to the Future Water Project 2060. This has increased the complexity of the analysis and will require additional modelling scenarios to be undertaken, t, additional funds are required to complete this project. The total revised budget has increased to \$100,000.

It is proposed to transfer \$50,000 from available funds in capital works that were originally planned for the destratification system at Rocky Creek Dam and will no longer be needed in the current financial year to fund this project.

To account for this change in 2021/22, the following adjustment is required:

Operating Expenditure	Contractors and Materials		(\$50,000)
Capital Expenditure	Contractors and Materials		\$50,000
		Impact on Cash Surplus	\$0

Safety monitoring

In August 2021 Rous implemented a 6-month Get Home Safe Application for staff working in remote and isolated locations. The risks to staff welfare when working in remote locations was identified as a major risk which was confirmed in the results of an external work health and safety audit that was conducted in 2020 as part of Council’s Internal Audit Program. The application utilises devices that can be used by staff to indicate that they need assistance. The system links to an external monitoring company that receive alerts and alarms if the device is activated and then contact the staff member via emergency services. The devices do not require telephone coverage to operate. This program has been extended for a further six months and requires an additional budget allocation.

\$10,000 is requested for this purpose with the funds to be drawn from the salaries budget allocated to the Enterprise Risk Coordinator position, which due to ongoing recruitment activities is currently vacant at the time of this report.

To account for this change in 2021/22, the following adjustment is required:

Operating Expenditure	Other Costs		(\$10,000)
Operating Expenditure	Salaries		\$10,000
		Impact on Cash Surplus	\$0

Workforce Management Plan

As part of the requirement to review and update the Integrated Planning and Reporting (IP&R) framework, consultants from Local Government Management Solutions (LGMS) have been engaged to develop the Workforce Management Plan (WMP) for 2022-2025. The WMP is a proactive, three-year strategy (aligned to the Council term) that shapes the capacity and capability of the workforce to achieve Council’s strategic goals and objectives. It identifies how future staffing and skills requirements will be met, such as through recruitment, staff progression and development, internal redeployment opportunities and succession planning. The cost to deliver the WMP is approximately \$20,000.

Funds were allocated in the previous financial year for the development of the WMP. Those funds were not subsequently required due to the decision by the NSW State Government to add an additional year to the IP&R framework period, making it a 5-year framework (instead of a 4-year framework). An internal oversight meant that the funds previously allocated were not carried forward in the 2021-2022 financial year. As such, it is proposed that funds to cover the cost of the WMP be drawn from savings in the salaries budget allocated to the Change Team within the People and Performance Group.

To account for this change in 2021/22, the following adjustment is required:

Operating Expenditure	Contractors and Materials		(\$20,000)
Operating Expenditure	Salaries and Wages		\$20,000
		Impact on Cash Surplus	\$0

Waste solids disposal investigation

Since 2006, waste treatment solids from the Nightcap Water Treatment Plant (NCWTP) have been transported to the Three Chain Road Quarry for disposal in an agreement between Lismore City Council and Rous approved under DA02/1139.

On 12 October 2021, Lismore City Council advised that the development consent for quarrying (DA06/599) at Three Chain Road expires on 28 March 2022 and will not be renewed. Lismore City Council also advised that DA04/1139 is considered to rely upon the expiring quarry consent and that disposal of the NCWTP waste treatment solids will not be permitted beyond this date.

Approximately, 2,000 tonnes of waste treatment solids are currently produced by the NCWTP annually with a dry solids content of approximately 18%. The waste solids are collected in skip bins which are transported from the NCWTP to the facility at Three Chain Road under contract with Richmond Waste Services. Rous currently pays a disposal fee to Lismore City Council of \$10 per tonne, and alternatives currently suggested after the 28 March 2022 would be to dispose of the waste at Lismore City Council’s landfill facility at a cost of \$344.50 per tonne (ex GST). This would see Rous’s annual disposal costs rise from approximately \$20,000 per annum to \$690,000 per annum ex GST.

In late December 2021, Hunter H2O were engaged to undertake an urgent investigation for alternative disposal options for the NCWTP waste solids. Cost to undertake this investigation will be \$35,000 and it is proposed to utilise savings from the NCWTP electricity budget for this project.

To account for this change in 2021/22, the following adjustment is required:

Operating Expenditure	Contractors and Materials	S-NCWTP	(\$35,000)
Operating Expenditure	Contractors and Materials	S-NCWTP	\$35,000
		Impact on Cash Surplus	\$0

Replacement of steel tanks at Emigrant Creek Dam Water Treatment Plant

An additional \$80,000 in funding will be used to complete the installation of 3 x reinforced polymer liners in the wastewater, filtered and supernatant process water tanks at the Emigrant Creek Dam Water Treatment Plant. Three quotes have been received ranging from \$101,000-\$130,000 (ex GST). The preferred quotation from Australian Liners and Tanks is \$103,912 (ex GST). An additional 20% contingency above the quoted amount is requested as there may be minor corrosion to be addressed once the original liners have been removed. The initial budget allocation was based on verbal advice from suppliers regarding liner supply however this was incorrectly assumed to also include installation costs.

It is proposed to transfer \$80,000 from available funds in capital works that were originally planned for the destratification system at Rocky Creek Dam and will no longer be needed in the current financial year for this project.

To account for this change in 2021/22, the following adjustment is required:

Capital Expenditure	Contractors and Materials		(\$80,000)
Capital Expenditure	Contractors and Materials		\$80,000
		Impact on Cash Surplus	\$0

Budget Review for the Quarter Ended 31 December 2021

(QBR53) Capital Budget

	Original Budget 2021/22	2020/21 Carryovers	Approved Changes Sept Review	Recommend Changes for Council Resolution	Projected Year End Result 2021/22	Actual YTD
Capital Funding:						
Capital Grants & Contributions	0	0	0	0	0	
Internal Restrictions						
- Renewals	11,546,500	859,840	408,960	(130,000)	12,685,300	2,617,200
- New Assets	19,565,100	(56,740)	1,738,940	80,000	21,327,300	6,975,400
External Restrictions						
- Infrastructure	0	0	0	0	0	0
Other Capital Funding Sources						
- Operating Revenue	0	0	0	0	0	0
- S64 Contributions	4,080,000	0	0	0	4,080,000	2,525,600
Income from Sale of Assets						
- Plant and Equipment	0	0	0	0	0	0
- Land and Buildings	1,686,400	0	(1,686,400)	0	0	0
Total Capital Funding	36,878,000	803,100	461,500	(50,000)	38,092,600	12,118,200
Capital Expenditure:						
New Assets						
- Plant and Equipment	498,100	0	0	0	498,100	75,500
- Office Equipment	110,000	50,000	0	0	160,000	112,900
- Inventory (Land)	2,490,000	0	0	0	2,490,000	26,300
- Land and Buildings	7,737,500	0	0	0	7,737,500	6,850,000
- Infrastructure	14,495,900	(106,740)	52,540	80,000	14,521,700	2,436,300
Renewals (Replacement)						
- Plant and Equipment	0	0	0	0	0	0
- Office Equipment	672,300	0	0	0	672,300	75,000
- Land and Buildings	26,000	29,800	0	0	55,800	0
- Infrastructure	10,848,200	830,040	408,960	(130,000)	11,957,200	2,542,200
Total Capital Expenditure	36,878,000	803,100	461,500	(50,000)	38,092,600	12,118,200

Budget Review for the Quarter Ended 31 December 2021

(QBR54) Cash & Investments

	Opening Balances 2020/21	Original Budget 2021/22	2020/21 Carryovers	Approved changes Sept Review	Recommend changes for Council Resolution	Projected Year End Result 2021/22
Unrestricted:						
Flood Mitigation	99,000	0	0	0	0	99,000
Weeds Biosecurity	25,800	0	0	0	(8,200)	17,600
Retail Water	100,000	0	0	0	0	100,000
Richmond Water Laboratories	10,000	0	0	0	0	10,000
Commercial Properties	100,000	0	0	0	(3,300)	96,700
Fleet	50,000	0	0	0	(9,000)	41,000
Bulk Water	1,043,800	0	0	0	(136,000)	907,800
Total Unrestricted	1,428,600	0	0	0	(156,500)	1,272,100
Externally Restricted:						
Flood Grants	197,800	0	0	(30,000)	0	167,800
Weeds Grants	922,000	0	0	(68,000)	51,900	905,900
Weeds Other	0	0	0	0	0	0
Bulk Water Grants	11,500	0	0	0	0	11,500
Bulk Water Other	2,950,000	0	0	0	0	2,950,000
Total Externally Restricted	4,081,300	0	0	(98,000)	51,900	4,035,200
Internally Restricted:						
Flood Mitigation	802,300	(228,200)	(162,700)	(116,600)	0	294,800
Weeds Biosecurity	1,130,900	(56,300)	(105,000)	0	0	969,600
Retail Water	2,564,100	(1,393,400)	(15,500)	(10,000)	0	1,145,200
Richmond Water Laboratories	399,600	(27,200)	0	0	0	372,400
Commercial Properties	1,103,400	(912,700)	(29,800)	(1,686,400)	789,500	(736,000)
Fleet	1,110,100	(90,500)	0	0	0	1,019,600
Bulk Water				0		
- Buildings & Structures	187,700	(150,000)	0	0	0	37,700
- Assets & Programs	30,676,300	(27,209,300)	(1,375,800)	(840,500)	0	1,250,700
- Employee Leave Entitlement	2,264,200	(678,000)	0	0	0	1,586,200
- Electricity	2,586,900	0	0	0	0	2,586,900
- Office Equipment & Computer	936,400	(672,300)	(110,000)	0	0	154,100
- Greenhouse Gas Abatement	108,300	0	0	0	0	108,300
Total Internally Restricted	43,870,200	(31,417,900)	(1,798,800)	(2,653,500)	789,500	8,789,500
Total Restricted	47,951,500	(31,417,900)	(1,798,800)	(2,751,500)	841,400	12,824,700

Investment and Cash Bank Statement

The Responsible Accounting Officer certifies that all funds including those under restriction have been invested in accordance with section 625 of the *Local Government Act 1993*, clause 212 of the *Local Government (General) Regulation 2021* and Council's 'Investment' policy. Council's bank statement has been reconciled up to and including 31 December 2021.

Reconciliation

The YTD cash and investment figure reconciles to the actual balances held as follows:

Cash at Bank (as per bank statements)	5,734,635
Investments on Hand	35,500,000

Reconciled Cash at Bank & Investments	41,234,635
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(QBR5) Contractors

Contractor	Contract Details & Purpose	Contract Value (\$)	Contract Date	Duration of Contract	Budgeted (Y/N)
KD Bengé & MB Johnson t/as M & K Business Solution	Visitor Information Centre Project	97,000	11/10/2021	12 mths	Y
James Ralph t/as Ralph's Garden Maintenance	Gallans Road Gardens and Ground Maintenance	114,240	15/10/2021	12 mths	Y
Advanced Concrete Engineering Pty Ltd t/as APS	St Helena 600/525 Elevated Main Corrosion Repair	563,600	20/10/2021	7 mths	Y
The Impax Group Pty Ltd	Future Water Program 2060 - bore construction and drilling for new Conveys Lane deep bore at Wollongbar	357,350	20/10/2021	5 mths	Y
Engeny Management P/L t/as Engeny Water Management	Hydrology - Dam Break Consequence Category	74,500	5/11/2021	6 mths	Y
Hunter H2O Holdings Pty Ltd	Future Water Program 2060 - undertake site selection for the water treatment plant for the Alstonville Groundwater Scheme	71,859	10/01/2021	3 mths	Y

Note: Minimum reporting level is 1% of estimated income from continuing operations or \$50,000 whichever is the lesser.

(QBR5) Consultancy and Legal Expenses**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.

Expense	Expenditure YTD \$	Budgeted (Y/N)
Consultancies	\$88,290	Y
Legal Fees	\$42,611	Y

Comment: All consultancies and legal expenses incurred to date are within budget allocations. All figures exclude GST.

Consultancies		
	Corporate & Commercial - RAP Advisory	\$200
	Corporate & Commercial - Information Systems Review Start Up	\$3,950
	People & Performance – RCEIC Launch Welcome to Country	\$250
	Planning & Delivery – Dam Safety Management System	\$74,142
	Planning & Delivery – Broadwater PS Concept Design	\$9,748
Legal Fees		
	Corporate & Commercial - Purchase Gallan's Road Property	\$4,980
	Corporate & Commercial - Sale Carrington Street Property	\$2,448
	People & Performance – Contract Template Suite	\$20,792
	People & Performance - Water Connection Policy	\$6,552
	Planning & Delivery – Developer Contributions	\$998
	Planning & Delivery – Future Water Program Cultural Heritage	\$6,841

Statement of Expenses for Councillors

Councillor Expenses for the Quarter Ending 31/12/2021 (Q2)

Quarter 2	Other Expenses	Official Business of Council - Travel	Official Business of Council - Professional Development/Training	Total by Councillor (Q2)
Councillor Cadwallader	0	56	0	56
Councillor Cameron	0	0	0	0
Councillor Cook	0	72	0	72
Councillor Ekins	0	0	0	0
Councillor Humphrys	0	0	0	0
Councillor Mustow	0	0	0	0
Councillor Richardson	0	0	0	0
Councillor Williams	0	0	0	0
Councillors To Be Decided*	0	0	1,421	1,421
Total Per Expense Type	0	128	1,421	1,549

	Q1	Q2	Q3	Q4	Total by Councillor YTD
Councillor Cadwallader	49	56	0	0	105
Councillor Cameron	0	0	0	0	0
Councillor Cook	72	72	0	0	144
Councillor Ekins	0	0	0	0	0
Councillor Humphrys	0	0	0	0	0
Councillor Mustow	0	0	0	0	0
Councillor Richardson	0	0	0	0	0
Councillor Williams	0	0	0	0	0
Councillors Yet To Be Decided*	0	1,421			1,421
Total Per Expense Type	121	1,549	0	0	1,670


Budget 2021/22 FY 61,500


* This represents the cost for two Councillors to attend the Local Government New South Wales conference. The attendees are yet to be decided.

(QBR6) Key Performance Indicators

In assessing an organisation's financial position, there are several performance indicators that can assist to easily identify whether an organisation is financially sound. These indicators and their associated benchmarks, as stipulated by Office of Local Government, are set out below:

	# Performance Indicator		Flood	Weeds	Retail	RWL	Property	Fleet	Bulk	Consolidated (Whole Organisation)	Local Government Bench Mark
1	Operating Performance	2021/22 Budget Review	(1,072,200)	(94,400)	(99,800)	(1,600)	(171,500)	(85,500)	(4,592,500)	(6,117,500)	Surplus
		2020/21 Actual	(996,969)	182,587	(441,212)	(36,557)	868,066	105,730	(592,588)	(910,944)	
2	Current Ratio	2021/22 Budget Review	56.16	189.31	49.81	47.80	(12.79)	53.03	1.92	2.75	> 1.5
		2020/21 Actual	7.87	45.91	182.68	19.32	22.07	13.12	5.47	6.46	
3	Debt Service Cover Ratio	2021/22 Budget Review	-	-	-	-	-	-	1.46	1.72	> 2
		2020/21 Actual	-	-	-	-	-	-	1.56	1.95	
4	Own Source Operating Revenue Ratio	2021/22 Budget Review	1%	2%	100%	100%	100%	100%	82%	74%	> 60%
		2020/21 Actual	1%	1%	98%	100%	100%	100%	78%	75%	
5	Building and Infrastructure Renewals Ratio	2021/22 Budget Review	0.18 : 1	-	-	-	1.11 : 1	-	2.41 : 1	2.09 : 1	> 1:1
		2020/21 Actual	0.11 : 1	-	-	-	0.00 : 1	-	0.96 : 1	0.86 : 1	

 Projected result meets or exceeds benchmark.

 Projected result does not meet benchmark.

Comments on Key Performance Indicators

Please note that comments relate to the consolidated financial indicators.

1. Operating Result Before Capital Contributions

The operating result is the surplus or deficit that Council makes from normal operations (including depreciation) excluding expenditure on capital items. A surplus is a positive financial indicator.

Comment: Council's operating result (deficit) before capital items has increased compared with the original budgeted deficit of \$4,308,400.

Original Budgeted Deficit	(\$4,308,400)
Projected Year End Result 2021/22	(\$6,117,500)
	(\$1,809,100)

The increase can be attributed to carry over works (\$996K) reinstated from 2020/21, operating expenses (\$1.530M), salaries (\$463K), a decrease in property income (\$60K) and a reduction in interest on investments (\$156K), offset by revenue increases from grant funding (\$1.285M), contributions (\$60K), private works income (\$31K) and a reduction in interest expense (\$20K).

Carryovers / Reinstatements	(\$995,700)
Expenses	(\$1,973,100)
Revenue	\$1,159,700
	(\$1,809,100)

Note: Operating results include depreciation of \$7,416,500 which is non-cash.

2. Current Ratio Liquidity

The current ratio measures Council's ability to pay existing liabilities in the next 12 months. A ratio greater than one is a positive financial indicator.

Comment: The above ratio means that for every dollar Council owes in the short term, it has \$2.75 available in assets that can be converted to cash.

3. Debt Service Cover Ratio

This ratio demonstrates the cost of servicing Council's annual debt obligations (loan repayments, both principal and interest) as a portion of available revenue from ordinary activities. A higher ratio is a positive financial indicator.

Comment: Ratio, as a percentage of ordinary revenue, is consistent with the Long-Term Financial Plan.

4. Own Source Operating Revenue Ratio

This ratio measures fiscal flexibility. It is the degree of reliance on external funding sources such as operating grants and contributions. A Council's financial flexibility improves the higher the level of its own source revenue. A higher ratio is a positive financial indicator.

Comment: The above percentage demonstrates that the majority of Council's income is generated from user fees and charges, i.e. water sales.

5. Building and Infrastructure Renewal Ratio

This ratio indicates the rate of renewal/replacement of existing assets against the depreciation of the same category of assets. A ratio greater than one is a positive financial indicator.

Comment: The current ratio reflects an above benchmark forecast.

Grant application information

This table provides information on grant applications that have been approved or submitted up to time of preparation of the QBRs. Any grants that may have been approved after that date or that have been applied for, will be covered in future reports. The details of new grants, including grants awaiting a determination, are provided below. A financial update on existing grants has also been provided.

Note: all totals are GST exclusive

Grant Name	Fund	Synopsis	Funding Body	Program	Project Length	Total Project Value	Grant Funding	Council Funding	Total Expenditure to Date	Balance of Approved Funds to Spend
New Grants that have been approved										
Coraki Riparian Project	Flood	Richmond River coastal riparian project at Coraki	DPIE	Fish Habitat Action Grant	12 mths	112,160	40,000	72,160	-	112,160
Miconia 2022-24	Weeds	Miconia weed surveillance and control services in Northern NSW	QLD DAF	Miconia Weed Surveillance	36 mths	298,000	298,000	-	-	298,000
Frogbit	Weeds	Chinderah Frogbit incursion management and monitoring	DPIE	2021-2022 NSW Weeds Action Program – New Weed Incursion	12 mths	10,000	10,000	-	-	10,000
Active Grants That Have Been Previously Reported										
Integrated Water Cycle Management (IWCM) Strategy	Water	Undertake a review of the long-term water security strategy and complete a integrated water cycle management strategy for RCC.	DPIE	Safe & Secure Water Program	12 mths	929,000	151,000	778,000	928,566	434
Coastal Management Plan	Flood	Stage one of the Richmond River Coastal Management program scoping study	DPIE	Floodplain Management Grants Scheme	18 mths	149,997	99,998	49,999	137,345	12,652
Water Quality Monitoring 2019-22	Flood	Richmond River water quality monitoring project	DPIE	Coastal & Estuary Grants Program	36 mths	199,768	99,884	99,884	116,818	82,950
Voluntary House Raising	Flood	Facilitate the voluntary house raising of 2 homes in the Lismore area.	DPIE	Floodplain Management Grants Scheme	12 mths	187,900	187,900	-	60,228	127,672
Flood Maintenance 2018-22	Flood	Fourth year of a four year grant. Each year Council approves spending on this project in excess of the required 1:2 (funding per the agreement \$169,200).	DPIE	Floodplain Management Grants Scheme	48 mths	676,800	84,600 p.a.	84,600 p.a.	173,967	110,033
Weeds Action Program 2020-25	Weeds	Funding allocated annually	LLS	North Coast Weeds Action Program 2020-25	12 mths	1,267,500	642,500	625,000	382,784	884,716
Miconia 2018-21	Weeds	Miconia weed surveillance and control services in Northern NSW	QLD Ag & Fisheries	Miconia Weed Eradication	36 mths	61,740	61,740	-	58,624	3,116
Alligator Weed - Evans Catchment	Weeds	Funded under new weed incursion program	NSW DPI	WAP - New Weed Incursion	12mths	41,500	32,000	9,500	41,500	0
Parthenium Weed Rapid Response	Weeds	Rapid response to control prohibited Matter species – parthenium weed	NSW DPI	New Weed Incursion	12 mths	20,000	15,000	5,000	6,149	13,851
2020-2021 NSW Weeds Action Program – New Weed Incursion – Frogbit Rapid Response	Weeds	Support essential first response treatments of new incursions of prohibited weeds	NSW DPI	NSW Weeds Action Program – State Priority Weeds Coordination and Response	12 mths	25,000	15,000	10,000	25,000	0
Bushfire Recovery Stimulus -W2 Strategic Weed Control	Weeds	Control of high priority weeds in the region. Focus on Tropical Soda Apple control in areas that are on fire affected properties or located within high risk pathways.	LLS	NSW Bushfire Recovery Stimulus	12 mths	272,000	250,000	22,000	274,647	(2,647)
North Coast Bushfire Recovery – Delivery of – W1 Tropical Soda Apple Landholder Engagement Project in the North Coast	Weeds	Tropical Soda Apple Landholder Engagement and Compliance Program – delivery of 210 property inspections	LLS & DPI	NSW Bushfire Recovery Stimulus	60 mths	236,000	214,000	22,000	125,511	110,489

Note: The additional expenditure on the Bushfire Recovery Stimulus grant is funded by the Weeds Action Program 2020-25.

Legal

In accordance with clause 203 of the *Local Government (General) Regulation 2021*, Council's financial position is satisfactory having regard to the original estimate of income and expenditure and Council's projected short-term liquidity position.

Consultation

This report was prepared in consultation with the General Manager and relevant staff.

Conclusion

In summary, all budget items other than those identified in the report have performed within the parameters set by Council in adopting the 2021/22 Operational Plan.

Retail water customer account assistance

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That Council in accordance with section 356 (1) of the *Local Government Act 1993* and its 'Retail Water Customer Account Assistance' policy, approve financial assistance as listed in Table 1 of this report.

Background

Applications for financial assistance in accordance with section 356 (1) under Council's '*Retail Water Customer Account Assistance*' policy has been received. Details of the application are set out below.

Table 1

Account	Property owner/s	Date application received	Nature of leak	Original water charges due	S356 financial assistance to be approved	Adjusted water charges due after approval
12204-10000-1	NJ Miles	13-Sep-21	Undetectable split in pipe underground to the side of the house	\$3,111.90	\$1,385.18	\$1,726.72
11127-11000-2	JA Saffin	2-Nov-21	Undetectable broken pipe, located 100m from water meter	\$3,240.16	\$1,443.87	\$1,796.29
Total				\$6,352.06	\$2,829.05	\$3,523.01

Finance

The 2021/22 financial year budget allocation for applications made in accordance with the '*Retail Water Customer Account Assistance*' policy is \$25,000.

2021/22 financial year budget	\$25,000.00	No. of applications
S356 assistance approved financial year to date	\$1,383.28	1
S582 assistance approved financial year to date	\$0.00	
S582 assistance approved since last Council meeting	\$0.00	
Proposed S356 assistance approval this Council meeting	\$2,829.05	2
Proposed S582 assistance approval this Council meeting (refer confidential report)	\$3,211.23	2
Budget remaining 2021/22 financial year	\$17,576.44	

Legal

Section 377(q) of the *Local Government Act 1993* provides that a decision under section 356 to contribute money or otherwise grant financial assistance may not be delegated and that the decision must be made by resolution of Council.

Conclusion

The total value of section 356 financial assistance equates to \$2,829.05 by application of Council's '*Retail Water Customer Account Assistance*' policy. It is proposed that Council grant the recommended financial assistance.

Southern Cross University: Rising Star Scholarship program

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That Council approve the renewal of sponsorship for the Southern Cross University Rising Stars Scholarship program for a total of three (3) one-year scholarships of \$5,000 per annum with the first scholarship to be granted in 2022 and subsequent scholarships offered in 2023 and 2024.

Background

In 2016 Council resolved to sponsor the Rising Star Scholarship program with Southern Cross University (SCU). SCU Rising Star Scholarships aim to reward students who demonstrate outstanding academic potential and provide financial support to students who might otherwise not have the opportunity to achieve a university education. The sponsorship was renewed by Council again in 2018, with the scholarship concluding in 2021. Scholarships of \$5,000 have been offered annually for six years to students residing in one of the constituent council areas of Ballina, Byron, Lismore or Richmond Valley.

This program has seen Council support 6 students (4 female and 2 male) enrolled in a course of study with Southern Cross University's Faculty of Science and Engineering; with preference given to a new or continuing female student enrolled in an engineering degree.

Southern Cross University has formally requested Rous for renewal of the agreement which will continue to support higher education opportunities and outcomes for the local community. Typically, recipients of the scholarship have had the opportunity to meet with Council at the conclusion of the scholarship.

Outcome of review

A review of the scholarship was undertaken in late 2021 and determined that the scholarship should continue to preference a new or continuing female student enrolled in a course within SCU's Faculty of Science and Engineering. Courses within the school range from environmental solutions to regenerative agriculture and engineering (civil/mechanical/coastal).

These courses are complementary to Council's core functions, with the review recommending that courses within the faculty be given equal preference, and a view to the future that the scholarship agreement include a placement component at Council for the successful recipient.

Governance

Council is not required to provide 28 days' public notice as per section 356(3)(b) of the *Local Government Act 1993* as the sponsorship program is already provided for in Council's Operational Plan, budget and long-term financial plan.

Finance

Funding is allocated in the existing Operational Plan 2021/22 for the scholarship and consists of a total of three (3) one-year scholarships of \$5,000 per annum with the first scholarship to be granted in 2022 and subsequent scholarships offered in 2023 and 2024.

Conclusion

The continued support of the Southern Cross University Rising Star scholarship will encourage and support students with knowledge and skills that complement Council's core functions. Approval is sought to renew the agreement for an additional three years commencing in 2022. A review of future arrangements will be undertaken prior to 2026, with the aim of expanding the scholarship agreements to include a placement component at Council for the successful recipient.

Information reports

Responsible Officers: General Manager and Group Managers

Recommendation

That the following information reports be received and noted:

1. Fluoride plant dosing performance report: October to December 2021
2. Audit Risk and Improvement Committee: meeting update
3. Environmental Management System action list progress update 2021
4. Debt write-off information summary
5. Investments - January 2022
6. Water production and usage January 2022
7. Reports/actions pending

Background

Copies of the abovementioned reports are attached for information.

Consultation

The reports have been prepared in consultation with the General Manager, relevant Group Managers and staff.

Conclusion

Copies of the reports listed are attached for information.

Attachment

1. Information reports 1-7

Fluoride Plant dosing performance: October to December 2021

Responsible Officer: Group Manager Operations (Adam Nesbitt)

Recommendation

That Council receive and note the Fluoride Plant dosing performance: October to December 2021.

Background

In February 2019, it was resolved (6/19) that Council would receive a fluoride performance report incorporating chemical suppliers testing data and dosing plant performance on a quarterly basis. This report is for the period 1 October to 31 December 2021; quarter (Q4).

- Fluoride plant performance

Plant performance is measured against three criteria:

1. Australian Drinking Water Guidelines (ADWG) Health guideline value upper limit of 1.5 mg/L.
2. NSW Health Code of Practice for Fluoridation of Public Water Supplies ('Code') - target over a calendar year that > 95% of **all results** (dosed water and distribution) are between 0.9 and 1.5 mg/L; and
3. The Code - consistently achieve an overall fluoride dose of between 0.95 to 1.05 mg/L.

Attachments 1 to 4 are charts presenting the results for each of the four fluoride plants, in comparison to the criteria above.

The results of the analysis of samples collected during the quarter show that:

1. None of the plants have dosed fluoride above the ADWG guideline value of 1.5 mg/L.
2. Monthly 95th Percentile results for **all results** collected (dosed water and distribution) during the quarter are shown in Charts 1, 3, 5 and 7. Results were within the Code's target range of 0.9 to 1.5 mg/L.
3. Monthly 95th Percentile results for **dosed water** at each fluoride plant is shown in charts 2, 4, 6 and 8. Results were within the Code's dosing range of 0.95 to 1.05 mg/L.

- Fluoride deliveries

The following fluoride deliveries were received in accordance with product specifications during Q4 2021. Certificates of analysis are provided in Attachments 5 and 6.

Delivery Date	Chemical Name	Quantity	Delivered To	Purchase Order Number	Batch Number
14-12-2021	Sodium Fluorosilicate	2000 Kg	Knockrow	PO 17291	2117082A
14-12-2021	Sodium Fluorosilicate	2000 Kg	Corndale	PO 17291	2117082A
01-11-2021	Sodium Fluoride	960 kg	Corndale	PO 17359	0123721

Conclusion

For the period 1 October to 31 December 2021, the four fluoride plants operated by Council have met the dosing targets prescribed in the Australian Drinking Water Guidelines and the targets range within the NSW Health Code of Practice for Fluoridation of Public Water Supplies.

Attachments 1:

- Chart 1 – Clunes Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 2 – Clunes Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 2:

- Chart 3 – Corndale Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 4 – Corndale Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 3:

- Chart 5 – Dorroughby Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 6 – Dorroughby Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 4:

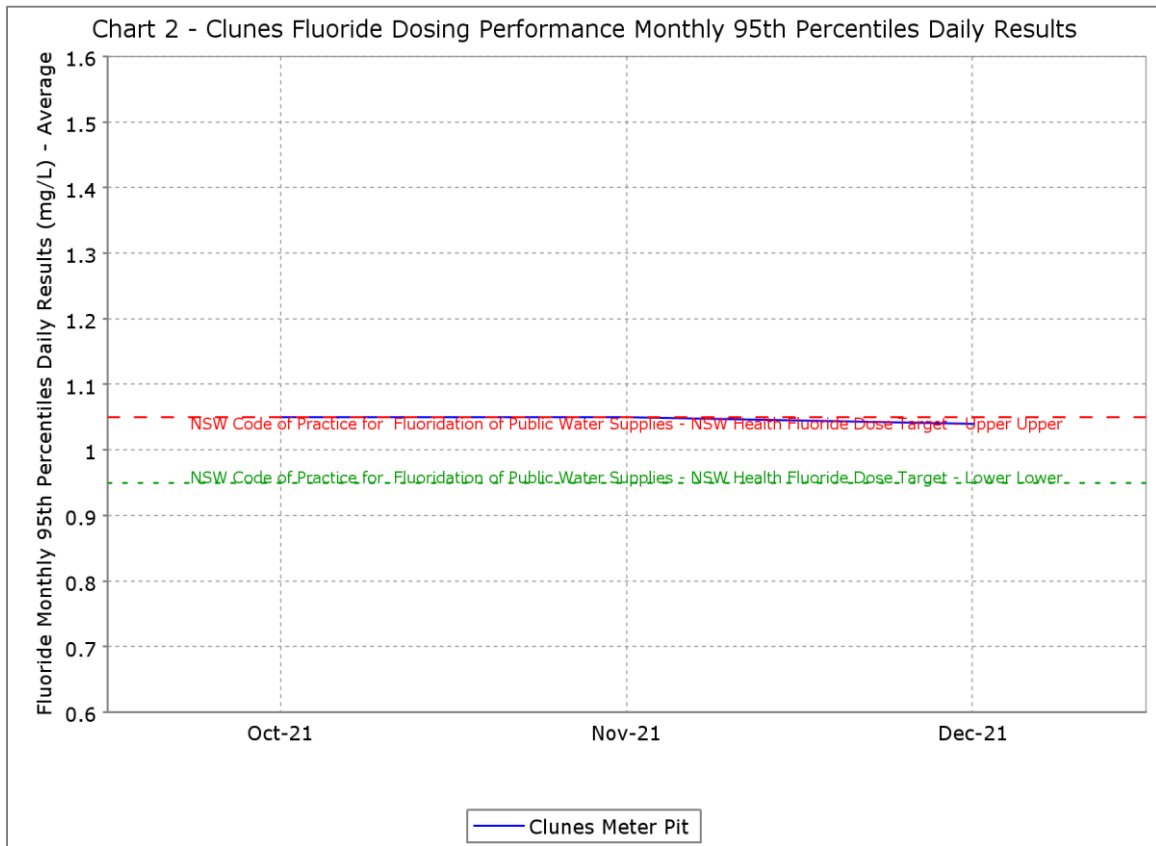
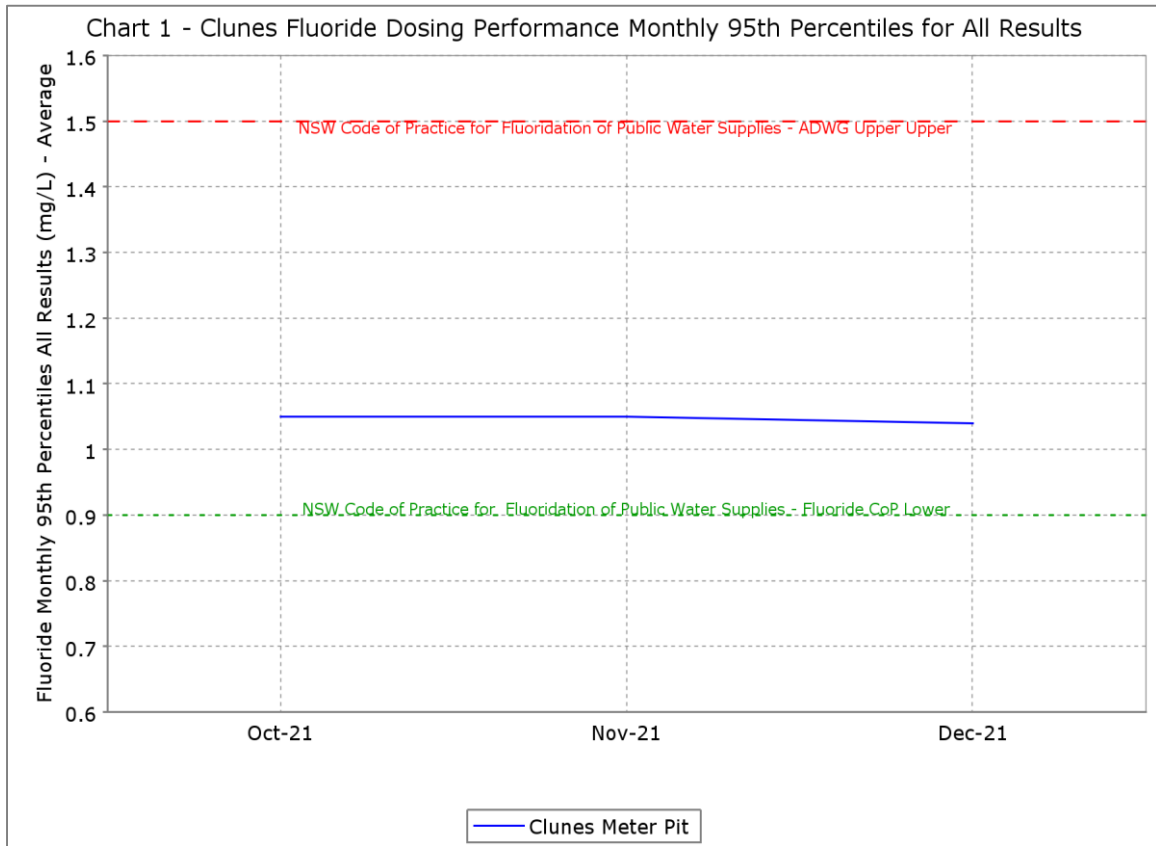
- Chart 7 – Knockrow Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 8 – Knockrow Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

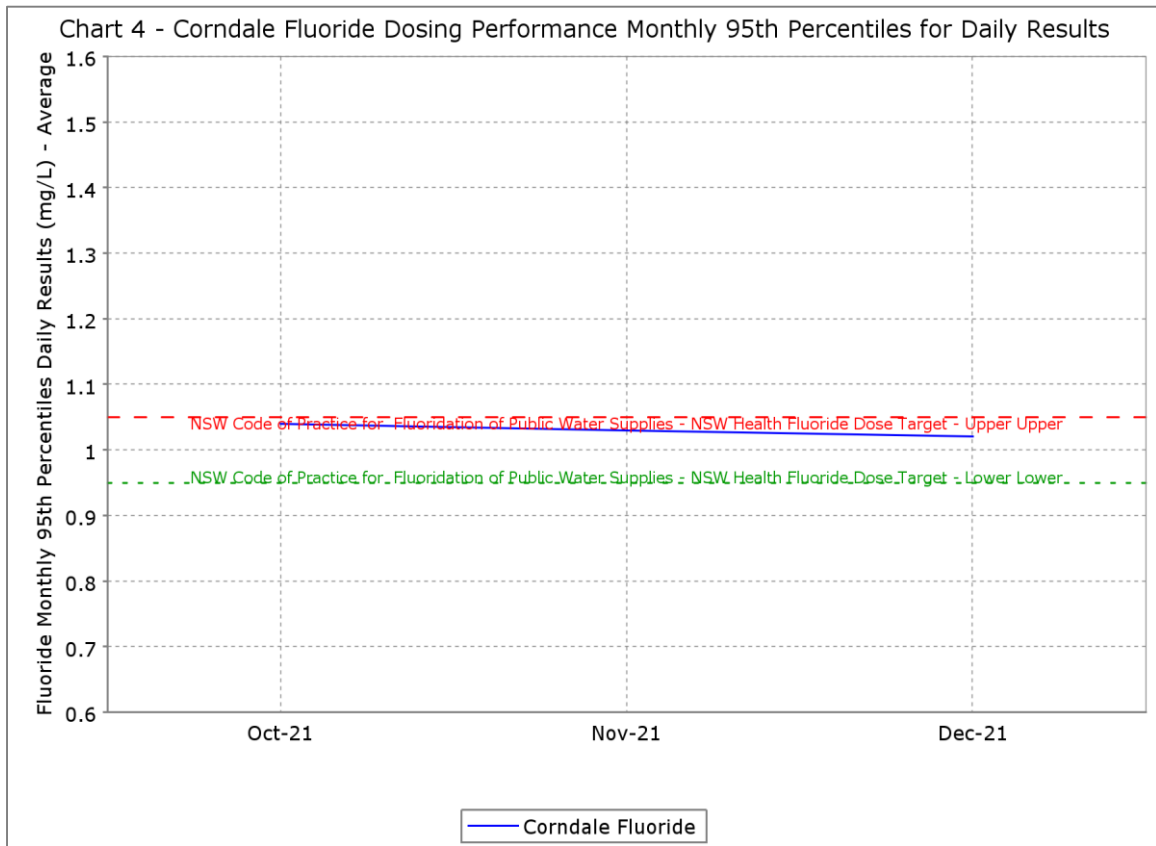
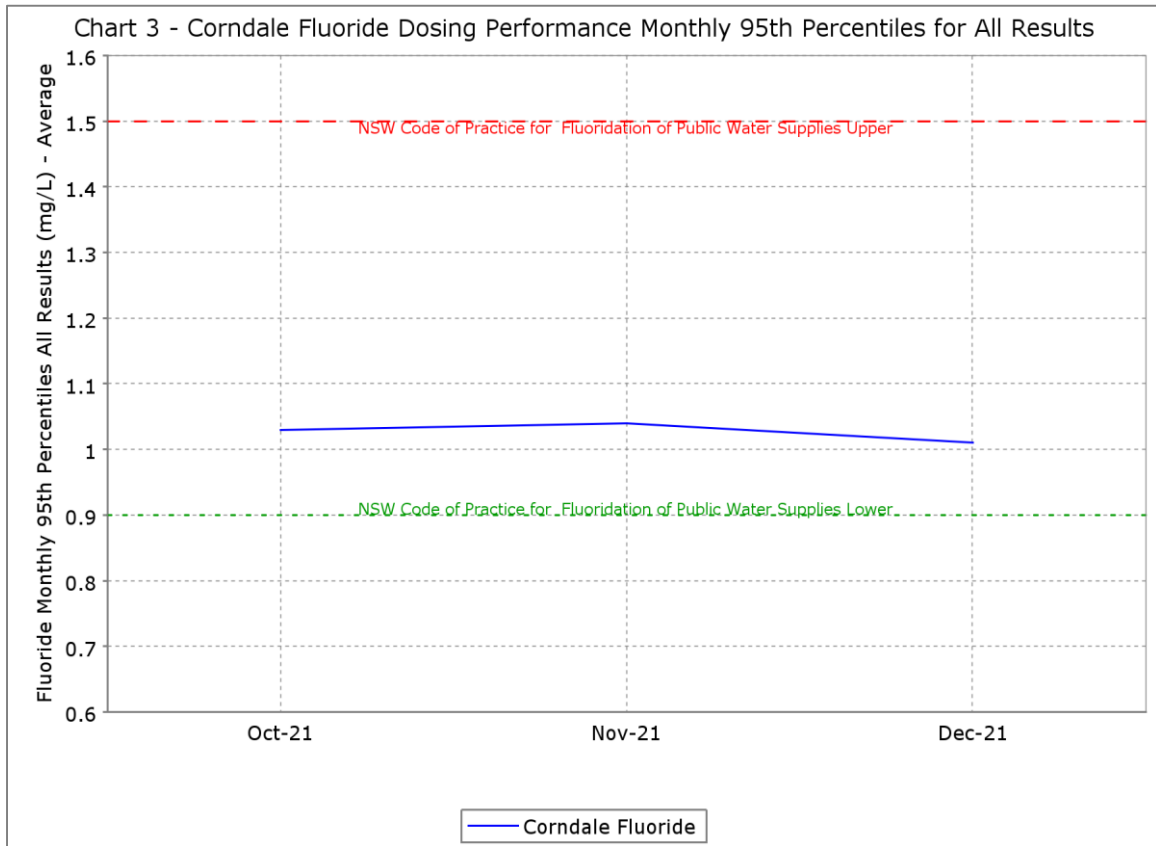
Attachment 5:

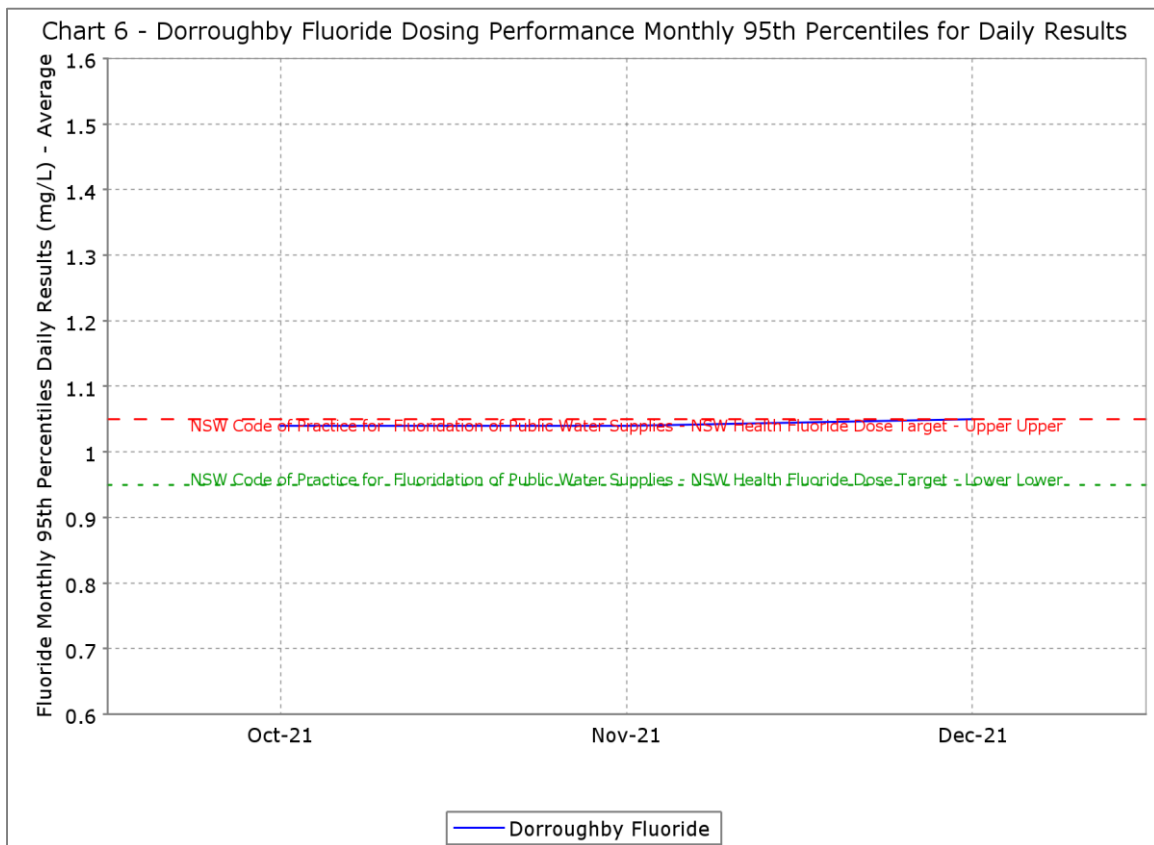
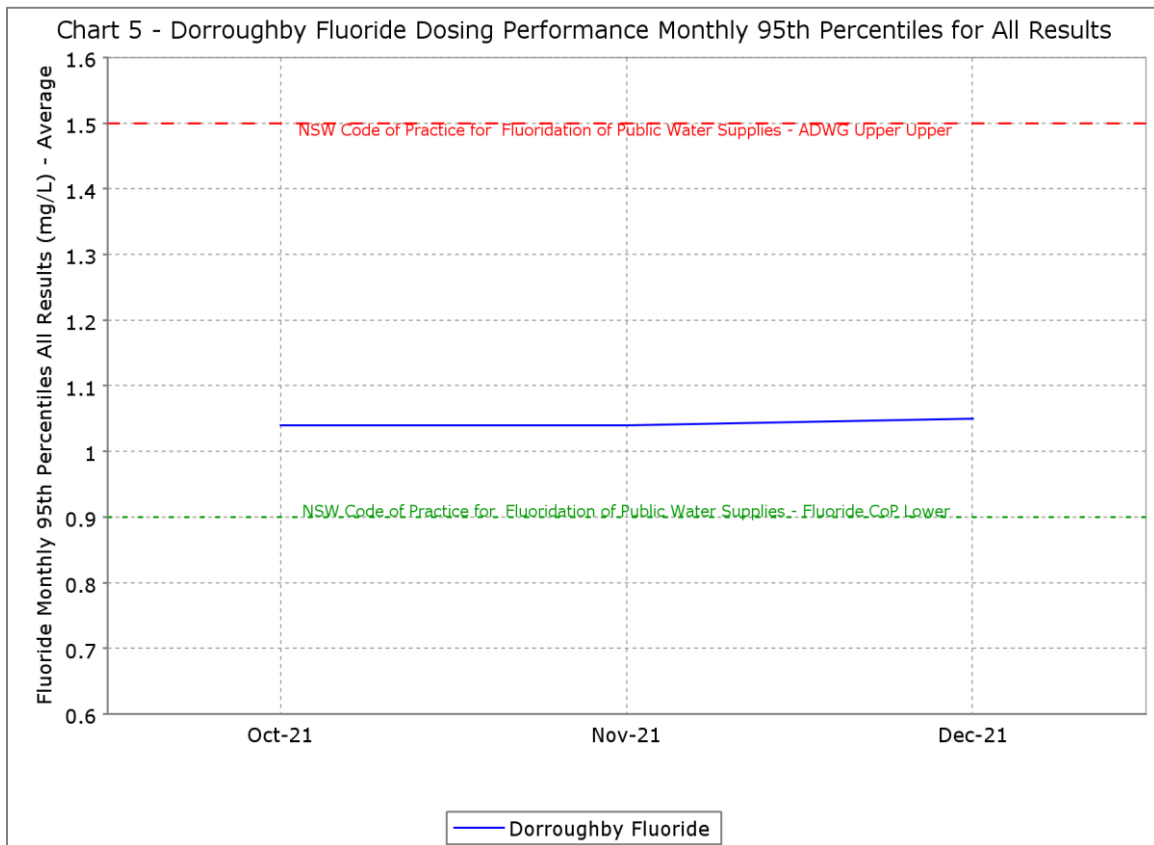
Certificate of Analysis – Sodium Fluorosilicate batch number 2117082A

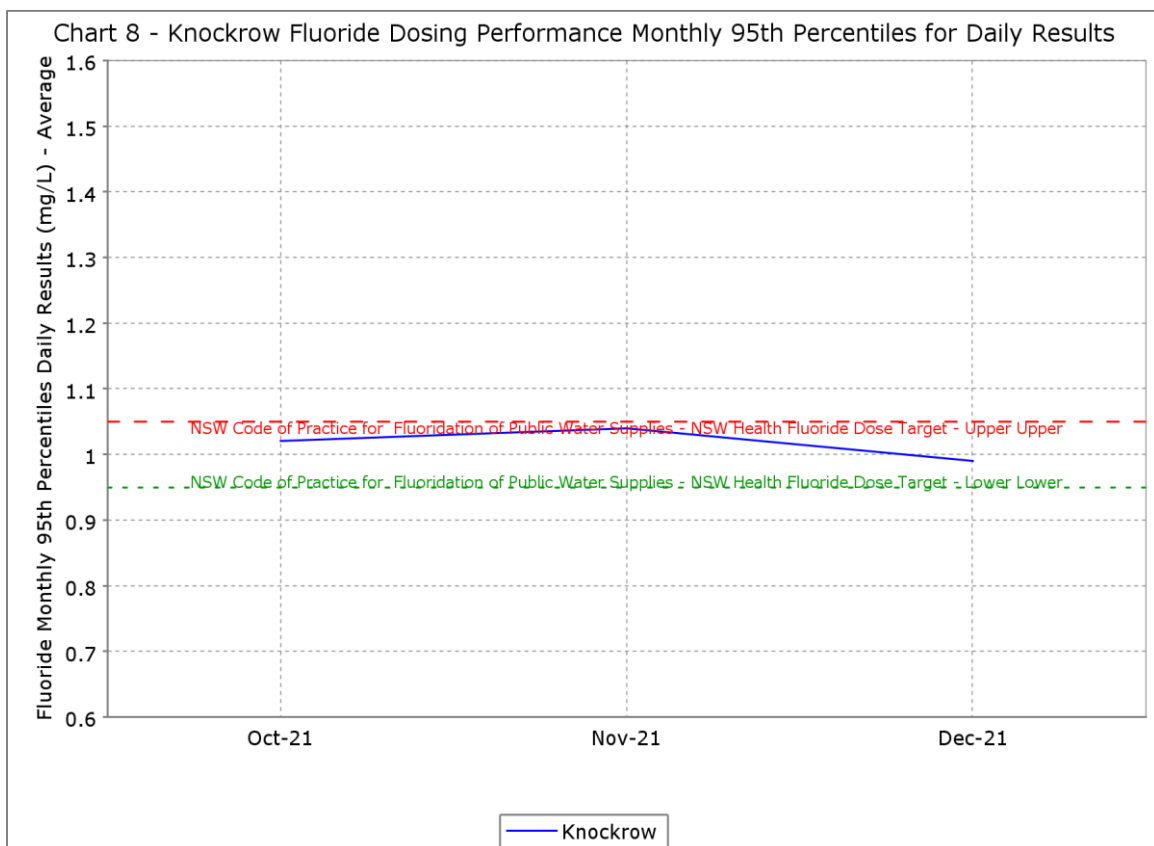
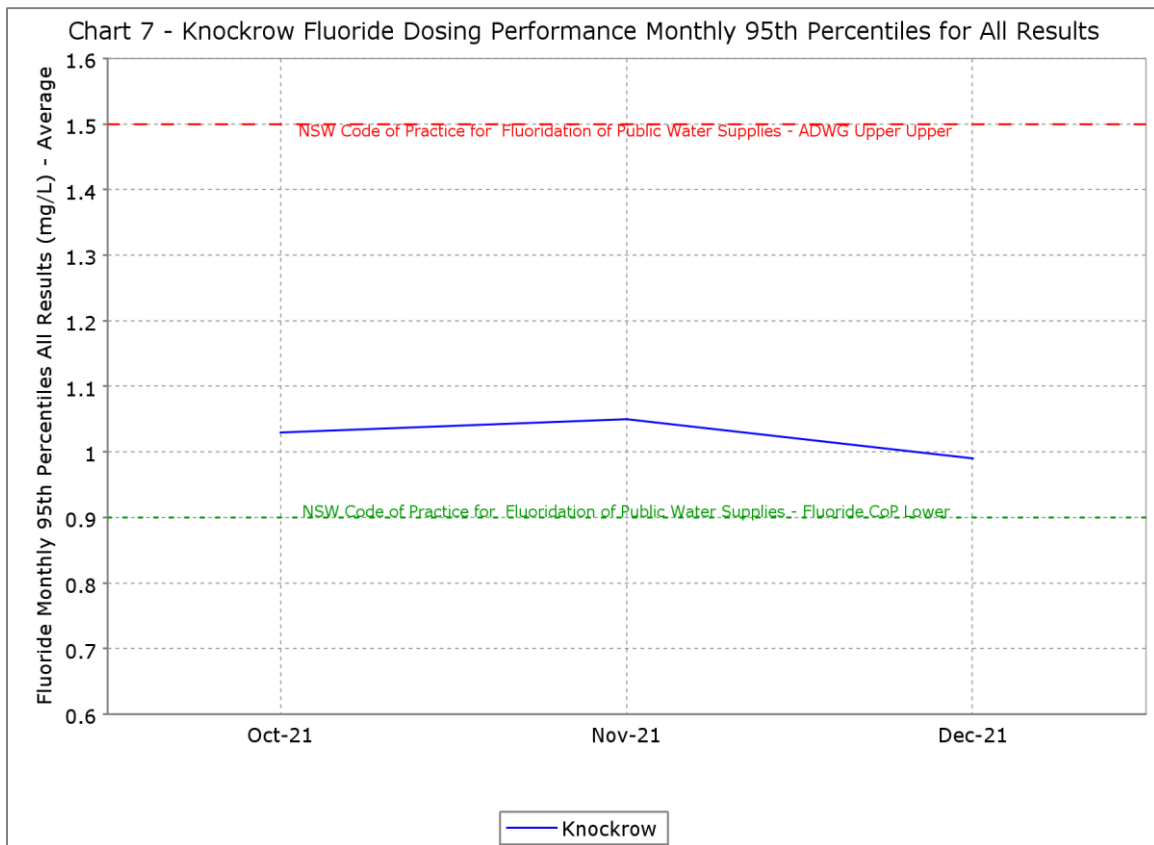
Attachment 6:

Certificate of Analysis – Sodium Fluoride batch number 0123721









Symbio LABORATORIES

CERTIFICATE OF ANALYSIS

Certificate Number	B1080377-A [R00]	Page	1/3
Client	DKSH PERFORMANCE MATERIALS AUSTRALIA PTY LIMITED	Registering Laboratory	Brisbane
Contact	Devinder Singh	Contact	Customer Service Team
Address	Level 3, 35 Cotham Road Kew VIC 3101	Address	52 Brandl Street, Eight Mile Plains, QLD 4113
Telephone	61 3 9208 6804	Email	admin@symbiolabs.com.au
Order Number	---	Telephone	1300 703 166
Project ID	Other - Sodium Fluorosilicate	Date Samples Received	05/10/2021
Sampler	Symbio	Date Analysis Commenced	05/10/2021
Client Job Reference	2117082A	Issue Date	14/10/2021
No. of Samples Registered	1 Sampler: Symbio	Receipt Temperature (°C)	Room Temperature
Priority	Normal	Storage Temperature (°C)	Ambient (25 °C)
		Quote Number	---



Accreditation No: 2455
Accredited for compliance
with ISO/IEC 17025 - Testing

This report supersedes any previous revision with this reference. This document must not be reproduced, except in full. If samples were provided by the customer, results apply only to the samples 'as received' and responsibility for representative sampling rests with the customer. Water results are reported on an 'as is' basis. Soil and sediment results are reported on a 'dry weight' basis. For other matrices the basis of reporting will be confirmed in the 'Report Comments' section. Measurement Uncertainty is available upon request. If the laboratory was authorised to conduct testing on samples received outside of the specified conditions, all test results may be impacted. Details of samples received outside of the specified conditions are mentioned in the sample description section of this test report.

Definitions

| <: Less Than | >: Greater Than | RP: Result Pending | MPN: Most Probable Number | CFU: Colony Forming Units | ---: Not Received/Not Requested | NA: Not Applicable | ND: Not Detected | LOR: Limit of Reporting | [NT]: Not Tested |
| ~: Estimated | ^ Subcontracted Analysis | TBA: To Be Advised | + Client Specified Limit | ** Potential Holding Time Concern | * Test not covered by NATA scope of accreditation | # Result derived from a calculation and includes results equal to or greater than the LOR |

Authorised By

Name	Position	Accreditation Category
Glen Rangott	Environmental Laboratory Manager, Brisbane	Environmental Chemistry
Hongmei Kuang	Chemistry Laboratory Manager, Brisbane	Environmental and Food Chemistry

Sample Information - Client/Sampler Supplied

Sample ID	B1080377-A/1
Sample Description	Sodium Fluorosilicate Batch: 2117082A

Client	DKSH PERFORMANCE MATERIALS AUSTRALIA PTY LIMITED
Certificate Number	B1080377-A [R00]
Page	3/3

Project ID	Other - Sodium Fluorosilicate
Sampler	Symbio
Order Number	---



Analysis Location

All in-house analysis was completed by Symbio Laboratories - Brisbane.

Report Comments

Methodologies employed to analyse sodium fluorosilicate comply with the requirements of the American Water Works Association (AWWA) B702-11.

Thomas Hedger



Sodium Fluoride DELIVERIES - CERTIFICATE OF ANALYSIS

Powder Lot Number: 20-247-01
 Profill Batch number: 0123721

Delivery Docket: 4505718689.....
 Customer Site: Fluorosafe NSF grade 5kg bottles (37).....

Parameter	Specification	Unit	Testing Performed By	Test Result
NaF purity	98.5% min	%	Prayon	100.3
Alkalinity	0.1% max	%	Prayon	< 0.01
Loss on Drying	0.10% max	%	Prayon	< 0.01
As	0.5 max	ppm	Prayon	< 0.10
Cl	100 max	ppm	Prayon	34.0
Fe	50 max	ppm	Prayon	6.96
Heavy Metals	50 max	ppm	Prayon	< 10
Insoluble	0.6 max	%	Prayon	< 0.05
Na ₂ SiF ₆	0.2 max	%	Prayon	< 0.01
Pb	1 max	ppm	Prayon	< 1
SO ₄	250 max	ppm	Prayon	< 20

Product meets AWWA standard B701-99. Material is certified to NSF / ANSI Std. 60 (Drinking Water Treatment Chemicals)

Authorised by: Ixom Product Manager

Signature :

Chris Howard Date: 01/09/2021

Ixom Operations Pty Ltd
 ACN 600546512
 1 Nicholson St,
 East Melbourne VIC, 3002 Australia
 www.ixom.com

hrl:

Result Sheet

Telephone: 03-9565 9888 International: +61-3-9565 9888
 Facsimile : 03-9565 9879 International: +61-3-9565 9879
 Web Site: www.hrlt.com.au

HRL Technology Group Pty Ltd
 ABN 89 609 887 327

Unit 4, Level 1, 677 Springvale Road
 Mulgrave Victoria 3170
 AUSTRALIA

Date: **1st December 2021** File No. **67210025** Report No. **21-1402-21 VER2**

To: Name **Chris Howard**
 Company **IXOM Chemicals**
 Address **Level 10, 1 Nicholson Street,
 East Melbourne, Vic 3002
 Australia**

From: Name **Andrew Curry** Tel No. **03 9906 3128**
 Tel No. **03 9565 9862**

Number of pages including this page: 2

ANALYSIS OF SODIUM FLUORIDE POWDER

Background: A sample of Sodium Fluoride with Batch # 0123721 was sampled by IXOM, then forwarded to the HRL laboratories, for analysis.

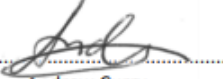
Analysis : The analysis for purity, % moisture, sizing and trace element impurity levels were determined in accordance with ANSI/AWWA B701-18. The mercury level was determined by cold vapour generation atomic absorption spectrometry.

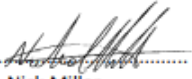
Results:

Table 1 presents results for the chemical and physical analysis.

Table 2 presents results for particle size.

Table 3 presents results for the regulated metals in accordance with AWWA B701-18.

Signed: 
 Andrew Curry
 Analytical Chemist

Approved: 
 Nick Miller
 Business Unit Leader – LATS

Distribution: Copy 1: Client. Copy 2: HRL Project File.

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The results presented in this report relate exclusively to the samples selected by the client for the purpose of testing. No responsibility is taken for the representativeness of these samples.

QA741H

21-1402-21 VER2 (continued)

Table 1: – Chemical & Physical Analysis.

Parameter	Unit	Batch # 0123721
Sodium Fluoride Content	%	99.3
Moisture	%	0.01

Table 2:-Particle Size.

Mesh Size	Unit	Batch # 0123721
-20 mesh	%	99.99
+100 mesh	%	13.37
-325 mesh	%	6.62

Table 3: Trace Element Analysis.

Element	Unit	Batch # 0123721
As	mg/kg	<2
Ba	mg/kg	2
Be	mg/kg	<1
Cd	mg/kg	<1
Cr	mg/kg	5
Cu	mg/kg	<1
Fe	mg/kg	14
Pb	mg/kg	<2
Ni	mg/kg	7
Sb	mg/kg	<3
Se	mg/kg	<9
Tl	mg/kg	3
Hg	mg/kg	<0.01

Audit, Risk and Improvement Committee – meeting update

Responsible Officer: Group Manager People and Performance (Helen McNeil)

Recommendation

That Council receive and note the attached minutes from the Audit, Risk and Improvement Committee meetings of 18 October 2021 and 22 November 2021.

Background

The Audit, Risk and Improvement Committee ('Committee') met on 18 October 2021 and 22 November 2021. A copy of the minutes of the meetings are attached ([Attachment 1 and 2](#)).

Key messages

1. Finance

a. Annual financial reports

An update on and copies of the reports in relation to the following matters were furnished to the Audit, Risk and Improvement Committee at its meeting on 18 October 2021 and subsequently reported to Council at its 20 October 2021 meeting:

- Annual Financial Report for year ending 30 June 2021,
- Report on the Conduct of the Audit for the year ended 30 June 2021, and
- Engagement Closing Report for year ending 30 June 2021.

b. Standard financial management reports

The Committee received and noted the information presented in the Financial Management Report – November 2021 regarding:

- Annual Financial Statements for year ending 30 June 2021 issued to the Office of Local Government,
- Audit Office of NSW Management letter on the final phase of the audit for year ended 30 June 2021,
- The quarterly budget review report furnished to Council's 20 October 2021 meeting applicable for the quarter ending 30 September 2021, and
- The investment report furnished to Council's 20 October 2021 meeting applicable for the month of 30 September 2021.

2. Governance

a. Office of Local Government 'A new risk management and internal audit framework'

An update was provided to the Committee on the Office of Local Government's ('OLG') 'New risk management and internal audit framework' ('Framework') – see [Office of Local Government 'Summary of changes to the proposed new risk management and internal audit framework in response to submissions'](#) for further information.

Several items for inclusion in Council's submission on the Framework were identified by staff and conveyed to the Committee, with members invited to provide further feedback to inform Council's final submission.

A copy of the submission prepared in consultation with the Committee and submitted to the OLG in November 2021 is provided at [Attachment 3](#).

b. Volunteer floodgate operator program

The first recommitment and safety reviews for 3 of the volunteers participating in the volunteer floodgate operator program, took place in August and October 2021. At these meetings, each person reconfirmed their commitment as a volunteer. The minutes of these meetings were compiled into the 2021 minutes of the volunteer floodgate operator program and presented to the Committee for endorsement.

c. Policy and delegation review

The Committee were advised that a priority for staff in the twelve months following the local government elections will be the review of Council's [Code of Conduct](#), [Code of Conduct Procedures](#), [Code of Meeting Practice](#), [Payment of expenses and provision of facilities for chairperson and councillors' policy](#) and the General Manager's delegation, as required under the *Local Government Act 1993 (NSW)* ('LG Act').

In accordance with clause 3.2 of its Code of Conduct Procedures (the 'Procedures'), in September 2017 Council resolved to utilise the Northern Rivers Regional Organisation of Councils (now known as the Northern Rivers Joint Organisation ('NRJO')) panel of code of conduct reviewers. This panel was established for a term of 4 years (see clause 3.9 of the Procedures), which has now expired.

An Expression of Interest ('EOI') process in conformance with Part 3 of the Procedures is now being progressed by Tweed Shire Council on behalf of the NRJO to establish a new panel of code of conduct reviewers. Once the NRJO panel is established, a resolution of Council will be sought to once again utilise this panel for the next 4 years.

It is anticipated that the EOI will be advertised at the end of January or start of February 2022 for a period of 4 weeks.

3. Audit

The schedule of internal audits undertaken at Council is determined in accordance with Council's Internal Audit Strategy and conducted by an external provider. Since 2014, Council's external audit provider has been Grant Thornton.

The Committee received an update on progress on the engagement of a new internal audit provider at its November 2021 meeting.

A Request for Quotation (RFQ) was prepared, advertised and proposals evaluated over November and December 2021 in consultation with the Committee Chairperson. Proposals were assessed on Price (60% weighting) and Non-Price (40% weighting) criteria in accordance with Council's Procurement policy.

Given the duration of its appointment (since 2014 to date), Grant Thornton was not invited to make a submission in response to Council's RFQ.

Council has in place a recurrent budget allocation for Internal Audit (increased by CPI annually) as set out in the report 'Audit, Risk and Improvement Committee – appointment of Councillor Members' to agenda item 7.1.

In December 2021, InConsult Pty Ltd were appointed as Council's new internal audit provider.

Preparation has commenced on the development of Council's next three-year Internal Audit Strategy (1 July 2022 to 30 June 2025), which will be presented to the Committee for endorsement and then remitted to the subsequent Council meeting for the approval of the governing body.

4. Service Review

a. Organisation structure and resourcing review

A further update on Council's organisation structure and resourcing review was provided to the Committee.

The initial round of consultation concluded on 18 June 2021, with the majority of the organisation structure being confirmed as of 17 August 2021.

Due to feedback received during the initial consultation period, a new proposal was put forward to the Finance, Governance and Risk teams. Following an additional consultation period with affected staff, a further revised structure was confirmed as of 18 October 2021.

All actions associated with Rous' organisation structure and resourcing review, including positional evaluations and gradings, correspondence and notification to relevant Unions, have been completed in accordance with Council's policies, procedures and in line with the requirements of the *Local Government (State) Award 2020* (the Award).

Recruitment to vacant positions is underway and will be ongoing into the first half of 2022.

Consultation

This report was prepared in consultation with the Audit, Risk and Improvement Committee Chairperson.

Conclusion

This report provides a summary of the key messages from the 18 October 2021 and 22 November 2021 Audit, Risk and Improvement Committee meetings and other associated matters.

Attachments

1. Audit, Risk and Improvement Committee meeting minutes 18 October 2021
2. Audit, Risk and Improvement Committee meeting minutes 22 November 2021
3. Submission to the OLG November 2021 'Risk Management and Internal Audit Guidelines'

Rous County Council

Audit, Risk and Improvement Committee Minutes

Monday, 22 November 2021

The Chair opened the meeting at 10.00am

In attendance:

Voting Committee:

- Brian Wilkinson (Independent member / Chair) - via 'Teams' link
- Andrew MacLeod (Independent member) - via 'Teams' link
- Cr Darlene Cook (Council member) - present at Council offices

Rous County Council:

- Phillip Rudd (General Manager) - present at Council offices
- Helen McNeil (Group Manager People & Performance) - present at Council offices
- Guy Bezrouchko (Group Manager Corporate & Commercial) - present at Council offices
- Natalie Woodhead-Tiernan (Finance Manager) - present at Council offices
- Lauren Edwards (Governance and Risk Manager) - present at Council offices
- Jonathan Patino (Finance Business Partner) - present at Council offices
- Tim Allen (ICT Manager) - via 'Teams' link

Other attendees:

- Geoff Dwyer and (Thomas Noble & Russell) - via 'Teams' link
- Richard Watkinson (Thomas, Noble & Russell) - via 'Teams' link

1. APOLOGIES

Adam Nesbitt (Group Manager Operations); Andrew Logan (Group Manager Planning and Delivery); Gearoid Fitzgerald (Audit Office NSW).

2. ACKNOWLEDGEMENT OF COUNTRY

Council showed its respect and acknowledged the Traditional Custodians of the Land, of all Elders, on which this meeting took place.

3. MINUTES OF PREVIOUS MEETING

Minutes of the meeting held 18 October 2021 were noted as presented.

4. DISCLOSURE OF INTEREST

Nil.

5. STANDARD REPORTS

i). Risk and compliance

RECOMMENDATION [32/21] (MacLeod/Cook) that the Audit, Risk and Improvement Committee receive and note the information presented in this report regarding enterprise risk management and progress of actions in the 2021 Risk Management Plan.

ii). Governance

RECOMMENDATION [33/21] (Cook/MacLeod) that the Audit, Risk and Improvement Committee:

1. Receive and note the information presented in the report on:
 - a. Policy and delegations review status.
 - b. The results in the attached 'Model Code of Conduct Complaints Statistics' report.
 - c. The governance of Council's section 355 Committee.
2. Endorse the attached 2021 minutes of the volunteer floodgate operator program.

iii). Work Health and Safety

RECOMMENDATION [34/21] (Wilkinson/MacLeod) that the Audit, Risk and Improvement Committee receive and note the information presented in this report regarding Work Health Safety systems, compliance and reviews.

iv). Audit

RECOMMENDATION [35/21] (Cook/MacLeod) that the Audit, Risk and Improvement Committee receive and note the information presented in this report on:

1. Progress against actions arising from internal audits.
2. Progress against actions arising from external audits.

v). Financial management

RECOMMENDATION [36/21] (MacLeod/Wilkinson) that the Audit, Risk and Improvement Committee receive and note the information presented in the Financial management report – November 2021 regarding:

1. Annual Financial Statements for year ending 30 June 2021 issued to the Office of Local Government.
2. Audit Office of NSW Management letter on the final phase of the audit for year ended 30 June 2021.
3. The quarterly budget review report furnished to Council's October 2021 meeting applicable for the quarter ending 30 September 2021.
4. The investment report furnished to Council's October 2021 meeting applicable for the month of 30 September 2021.

Geoff Dwyer (Thomas, Noble and Russell) and Richard Watkinson (Thomas, Noble and Russell) left at 10.38am.

vi). Service reviews

RECOMMENDATION [37/21] (Wilkinson/MacLeod) that the Audit, Risk and Improvement Committee note the information provided in the report regarding the completion of the organisation structure and resourcing review as determined on 18 October 2021.

vii). ICT Business Plan 2019-2021 status update

RECOMMENDATION [38/21] (Cook/MacLeod) that the Audit, Risk and Improvement Committee:

1. Receive and note the information presented in this report regarding the status of delivery of action items in the ICT Business Plan 2019-2021.
2. Receive a further report at the March 2022 meeting.

viii). Other Matters

RECOMMENDATION [39/21] (MacLeod/Cook) that the Audit, Risk and Improvement Committee receive and note the information contained in the report.

6. CONFIRMATION OF MINTUES

i). Audit, Risk and Improvement Committee meeting minutes 22 November 2021

RECOMMENDATION [40/21] (MacLeod/Cook) that the minutes of the Audit, Risk and Improvement Committee of 22 November 2021 be accepted as presented.

7. NEXT MEETING

Monday, 28 March 2022.

8. CLOSE OF BUSINESS

There being no further business the meeting closed at 11.05am

Rous County Council

Audit, Risk and Improvement Committee Minutes

Monday, 18 October 2021

The Chair opened the meeting at 10.00am

In attendance:

Voting Committee:

- Brian Wilkinson (Independent member / Chair) - via 'Teams' link
- Andrew MacLeod (Independent member) - via 'Teams' link
- Cr Darlene Cook (Council member) - present at Council offices

Rous County Council:

- Phil Rudd (General Manager) - present at Council offices
- Helen McNeil (Group Manager People & Performance) - via 'Teams' link
- Guy Bezrouchko (Group Manager Corporate & Commercial) - present at Council offices
- Natalie Woodhead-Tiernan (Finance Manager) - present at Council offices
- Lauren Edwards (Governance Advisor) - present at Council offices
- Jonathan Patino (Finance Business Partner) - present at Council offices

Other attendees:

- Geoff Dwyer and (Thomas Noble & Russell) - via 'Teams' link
- Chair welcomed Richard Watkinson (new TNR partner) - via 'Teams' link

1. APOLOGIES

Nil.

2. ACKNOWLEDGEMENT OF COUNTRY

Council showed its respect and acknowledged the Traditional Custodians of the Land, of all Elders, on which this meeting took place.

3. MINUTES OF PREVIOUS MEETING

Minutes of the meeting held 26 July 2021 were noted as presented.

4. DISCLOSURE OF INTEREST

Nil.

5. GROUP MANAGER CORPORATE AND COMMERCIAL REPORT

Geoff Dwyer, Thomas Noble and Russell (on behalf of Audit Office of NSW via video link) presented the Annual Financial Reports and Audit Report for year ending 30 June 2021.

i). Annual Financial Report and Auditor Report for year ending 30 June 2021

RECOMMENDATION [28/21] (MacLeod/Cook) that the Committee:

1. Receive and endorse the attached draft 'Annual Financial Statements for the year ended 30 June 2021' and the NSW Audit Office draft 'Report on the Conduct of the Audit for the year ended 30 June 2021' to Rous County Council for adoption.
2. Receive and note the NSW Audit Office 'Engagement Closing Report for the year ended 30 June 2021'.

The Chair thanked Geoff Dwyer for his presentation and attendance and for his assistance over the years and wished him all the best for the future. Thank you and welcome to Richard Watkinson.

6. OTHER MATTERS

i). Update on the Office of Local Government's 'A new risk management and internal audit framework for local councils in NSW'

RECOMMENDATION [29/21] (Wilkinson/MacLeod) that the Committee:

1. Receive and note the report; and
2. Provide Council staff with any feedback for inclusion in Council's submission, by 5 November 2021.

ii). Meeting schedule 2022

RECOMMENDATION [30/21] (Cook/MacLeod) that the Committee confirm meeting dates for 2022 as: 28 March; 23 May; 25 July; 17 October (financial statements) and 28 November commencing 10.00am.

7. CONFIRMATION OF MINTUES

i). Audit, Risk and Improvement Committee meeting minutes 18 October 2021

RECOMMENDATION [31/21] (Wilkinson/MacLeod) that the minutes of the Audit, Risk and Improvement Committee of 18 October 2021 be accepted as presented.

8. NEXT MEETING

Monday, 22 November 2021

9. CLOSE OF BUSINESS

There being no further business the meeting closed at 11.09am



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ABN: 81 383 023 771

Our Ref: F21/500: D21-36535

25 November 2021

Attn: Council Governance Team
Office of Local Government
Locked Bag 3015
NOWRA NSW 2541

BY EMAIL: olg@olg.nsw.gov.au

Dear Colleagues

DRAFT RISK MANAGEMENT AND INTERNAL AUDIT GUIDELINES

We refer to the above Guidelines provided under cover of circular 21-26 dated 24 August 2021. Please find set out hereunder our submissions in relation to same developed in consultation with our Audit, Risk and Improvement Committee ('Committee').

Tiered model

Core requirement 1 has adopted a tiered approach to determining size and composition requirements of a council's Committee, ostensibly to better reflect the size, risk profile, operational complexity and resources of individual councils.

Rous County Council ('Rous') has been classified within Tier 2 on the basis that it has higher revenue and operating expenses compared to other *county councils* [emphasis added].

However, the Guidelines apply to county councils the same classification scale used for general-purpose councils. This has led to Rous' constituent councils and adjoining Tweed Shire Council similarly being classified within Tier 2, while neighbouring Kyogle Council is classified as Tier 1.

As demonstrated in Figure 1, Rous' resourcing is more closely aligned with that of Kyogle Council. Notably, while revenue and expenses may be similar, the breadth of functions exercised by Kyogle Council far exceed the three functions exercised by Rous.

While a scaled approach has been taken to the size and composition requirements of a council's Committee, the increased planning and reporting requirements of the Committee proposed under the Guidelines remains the same for all councils (including county councils) regardless of their Tier.

It is expected that the increased planning and reporting requirements will be just as resource burdensome for councils as the proposed Committee size and composition requirements. It will also be difficult to justify lower fees if the duties and volume of work of Committee members are the same regardless of the Tier of the council, noting the Guidelines provide that the fees should "*reflect the time, commitment and responsibility involved in serving on the committee*".

Figure 1 – Comparison of council characteristics

2019/20	Rous County Council	Tweed Shire Council	Kyogle Council	Ballina Shire Council
Equivalent Full-Time Staff	86	711	117	331
Revenue (\$'000)	30,163	225,769	38,366	120,722
Expenses (\$'000)	27,779	184,968	25,257	91,514
Tier under the draft Guidelines	2	2	1	2

Source: Tweed, Kyogle and Ballina Council data for 2019-19 from the Office of Local Government 'Your Council' website (<https://www.yourcouncil.nsw.gov.au/>) accessed 10 November 2021.

Further, while the Guidelines do not prescribe the quantum of fees payable to Committee members, individuals sourced from the NSW prequalification scheme are engaged in accordance with the [Prequalification Scheme – Audit and Risk Committee Independent Chairs and Members – Conditions](#) ('Scheme Conditions') issued by NSW Treasury which do prescribe rates of remuneration. Without an amendment being made to the Scheme Conditions, what power or basis will a council have to refuse to pay the prescribed Scheme Condition rates? If an exception to the Scheme Conditions is intended to be made for councils, how will this change be communicated to individuals within the NSW pre-qualification scheme to reset their expectations when considering appointment to a council's Committee?

By way of reference, the fees currently paid by Rous to its Committee members compared to the rates payable under the Scheme Conditions are summarised below at Figure 2 (note: Rous' Committee meets 5 times each year).

Figure 2 – Fees currently paid by Rous compared to the NSW Prequalification Scheme

Member position	Rous County Council As at 1 July 2021	NSW Prequalification Scheme As at December 2020 (based on the 'small' fee category)
Chair	\$494.00 per meeting	\$12,552 per annum or \$2,510.40 per meeting (\$12,552/5)
Independent Member	\$300.00 per meeting	\$1,255 per meeting
Councillor Member	NIL (cl 2.3 Committee Charter)	Not applicable

Source: Rates of remuneration under the NSW Prequalification Scheme from the Scheme Conditions dated November 2021 issued by NSW Treasury.

It is our submission that the Office of Local Government should review the classification of Rous (and county councils in general) and either reclassify Rous as Tier 1 or develop two separate classification schemes for general-purpose councils and county councils.

Function rather than position

We note the advice of the Office of Local Government¹ that risk management and internal audit have been redesigned as functions rather than positions under the Guidelines to allow councils to fit these functions within existing roles in the organisation structure.

Although the term ‘function’ is utilised in the Guidelines, the requirements for satisfying core requirements 2 and 3 still appear very positional. For example, if a function can be assigned to existing roles within the council’s structure how does this align with the requirement that the risk management function be independent of line management?

It is our submission that the functions prescribed under Core Requirements 2 and 3 need further amendment to clarify the requirements and expectations for implementing a function rather than a position. Practical examples or case studies of what this may look like would be helpful.

Shared Arrangements

The Guidelines refer to the option for county councils, as a cost saving measure, to share a Committee and a risk management and an internal audit function with constituent councils.

However, the Guidelines also recommend that a shared internal audit function be hosted by one of the councils in the shared arrangement and that the “head” of the shared internal audit function be an employee of the host council.

Accordingly, the viability of this option for Rous will depend on the willingness of one of its constituent or other neighbouring councils to host the function given Rous would not be best placed or realise a benefit from hosting this function itself.

Preliminary, informal communications suggest that Rous’ constituent councils and other neighbouring councils have little to no appetite to utilise the shared function at this time.

It is our submission that the Office of Local Government should review the practicality of a shared risk management or internal audit function and consider other mechanisms that could be used to relieve the resourcing burden on county councils.

Comment

To enhance useability and for ease of reference, we encourage the Office of Local Government to consider numbering each paragraph or each section of the Guidelines.

We support the option to retain a connection between the Committee and the governing body through a non-voting councillor member.

We note that the Guidelines provide a statement that superannuation is payable on behalf of Committee members. We have not received any direction on this previously and it is unclear whether this is a new provision similar to that recently made in respect of councillors, or whether councils have always had an obligation to remit superannuation contributions on behalf of its Committee members. Clarification and further guidance on this point is needed.

¹ Refer to NSW Office of Local Government ‘[Summary Guide – changes made to original model proposed in discussion paper](#)’.

Conclusion

Rous, in partnership with its Committee members, make three key submissions in relation to the Guidelines proposed by the Office of Local Government:

1. Rous be reclassified as a Tier 1 council or a new classification scale applicable to county councils be developed;
2. Further detail be provided on the implementation of the Risk Management and Internal Audit 'function' and examples of what this may look like for councils provided; and
3. Re-evaluate the viability of the shared function option and develop an alternative mechanism to relieve the resourcing burden on county councils.

We appreciate the time taken to consider our submissions and the work of the Office of Local Government to date in developing and communicating the proposed changes to risk management and internal audit practices within councils.

Should you wish to discuss the above submissions further, please do not hesitate to contact Lauren Edwards, Governance and Risk Manager, on 0408 453 785 or by email at: lauren.edwards@rous.nsw.gov.au .

Yours faithfully



Phillip Rudd
General Manager



Environmental Management System action list progress update 2021

Responsible Officer: Group Manager Planning and Delivery (Andrew Logan)

Recommendation

That Council:

1. Receive and note the report on the progress of actions to mitigate risk of environmental harm from activities; and
2. Endorse the recommended changes to the Environmental Management System Action List, as proposed in Attachment 1.

Background

The purpose of this report is to update Council on the progress of actions from the Environmental Management System (EMS) Action List to mitigate risk of environmental harm from Council activities (Activity 7.2.2.1 of Rous County Council's IPR Delivery Plan).

Rous County Council adopted an *Environmental* policy in July 2007 committing to developing and implementing an AS/NZS ISO14001 Environmental Management System (EMS). The EMS framework was developed in 2009 and the development of supporting procedures and registers ensued.

In 2011, the EMS Action List was developed which identified the required actions, responsibilities and target timeframes to progress environmental management objectives within Rous. The EMS Action List was internally reviewed in 2013 with priority actions identified and several actions that focused on attaining 'industry best practice' indefinitely deferred due to resourcing limitations. The review noted that the indefinite deferral of actions may signal that the risk posed in relation to those actions represented an acceptable risk/exposure for Council.

In 2014, Council adopted a revised *Environmental* policy reaffirming its commitment to protection of the environment in all areas of its business and operations, however removing the previous commitment of implementing an AS/NZS ISO14001 compliant EMS. Council Resolution 83/14 which adopted the revised *Environmental* policy also required that '...annual reporting of the EMS Action List be provided to Council'. Review of Council records found that the EMS Action List was last reported to Council in 2014.

The *Environmental* policy was revoked in April 2021 with Council's commitments to environmental protection included in the *Land Management* policy.

EMS Action List – progress update

An internal review of the EMS actions was completed in 2018 which identified that three of the thirty-two original actions were outstanding, however a report was not submitted to Council at the time.

GeoLINK Engineering Consultants (GeoLINK) were engaged in 2020 to undertake a third-party review of Council's progress against the outstanding (active) actions and review the continuing implementation of completed actions. In summary, there are three active actions (C1, C2 and C3 – refer to Attachment 1) which is 8 less than was reported to Council in 2014.

Three actions previously marked 'complete' were recommended by GeoLINK to be re-addressed as the previously identified action resolution had not been fully implemented (C6, LM2 and LM8). These actions are referred to herein as 'semi-complete'.

Staff are continuing to progress the completion of the three active and three semi-complete actions. Completion of the active EMS actions (C1, C2 and C3) requires upgrade and augmentation of the bulk chemical storage facilities at Nightcap Water Treatment Plant (NCWTP). Significant planning has been undertaken on this project, investigating alternative options for either retrofit or relocation of the storage facilities and measures to bring the facilities to modern standards and improve operability of the water treatment plant.

The preferred option for the NCWTP bulk chemical storage upgrade is to relocate the chemical storage facilities to a new location on site which has been determined as the best option to address the environmental, traffic and operational risks while maintaining opportunities for future expansion of the plant. Further investigation is also currently being undertaken to determine the preferred long term chemical option for disinfection. Once this is determined, preliminary design of the bulk chemical storage facility can proceed.

Upgrade of the NCWTP bulk chemical storage facilities is a high priority project for staff and is currently expected to be completed in the 2023/24 financial year.

GeoLINK also reviewed the status and progress on the nine indefinitely deferred actions (D6, D7, D8, D9, D11, D12, D13, LM4 and LM12) from the EMS Action List. It was identified that progress has been made on several of the deferred actions, however some actions have since been superseded by implementation of business-as-usual practices to minimise environmental harm from Council activities.

A subsequent Council staff review of the deferred actions identified several actions had substantially been addressed through other activities that had been undertaken or had been superseded by business-as-usual practices or other Council programs or initiatives. It is recommended all deferred items be marked as complete or removed from the EMS Action List (refer GeoLINK and Council staff comments in Attachment 1).

Table 1 below provides a summary of the status of actions from Council's EMS.

Table 1 - EMS Actions Progress Summary

Action status	Number of actions
Complete	17
Active	3
Deferred	9
Semi-complete	3
TOTAL	32

Conclusion

Addressing the active EMS actions (C1, C2 and C3) through the bulk chemical storage facility upgrade at NCWTP continues to be a priority through identified activities in Council's Delivery Program. Several interim solutions have been implemented to further mitigate risk of water treatment chemicals entering the environment including implementation of an alternative method of cleaning lime hoses, purchase and installation of self-bunded chemical tanks and installation of stormwater treatment bunds and pollutant traps. The primary risk that is unable to be addressed until the new bulk chemical storage facility is constructed is spill containment bunding in the tanker unloading area.

Attachment 1 provides recommendations from Council staff on the management of the 15 EMS actions that are active, deferred or semi-complete.

Annual reports on the progress towards addressing the active EMS actions will be provided to Council as part of the Integrated Planning and Reporting updates, until the active and semi-complete actions are closed out.

Attachment:

1. Environmental Management System Actions.

Attachment: Environmental Management System Actions

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
Active	C1	Review process allowing wash down of lime to the environment at both Nightcap WTP and Emigrant Creek WTP and identify options for eliminating/addressing the hazard. Prepare a SWMS for wash down of lime handling equipment. Train relevant staff in execution of SWMS.	<p>Status: Active</p> <p>A review of lime washdown procedures has been undertaken.</p> <p>At Nightcap WTP - the lime slurry system is cleaned by either of two methods: a) removal and washing out of slurry hoses along roadway with lime discharging to drains through litter baskets. It is noted that litter baskets are not designed to capture lime; b) recirculation of citric acid through lime slurry delivery system for approximately 1 hour with lime/acid solution dumped to wastewater system. Operators advise the acid wash is quite effective however not all operators trained in this operation yet and occasional hose washout is still required.</p> <p>At Emigrant WTP - the lime slurry system is cleaned by either of two methods. a) as per above. c) circulation of air/water through lime slurry delivery system to dislodge lime which is discharged to drains (no litter basket). drains head to dam.</p> <p>Measures to complete action:</p> <p>Implement method b) - recirculation of citric acid through lime slurry system with lime waste discharged to wastewater treatment system. Where occasional hose washout required, discharge to be captured and directed to wastewater treatment.</p>	<p>Recirculation of citric acid is now the adopted practice of cleaning lime lines at Nightcap WTP with all operators trained and instructed to use this method. A permanent solution for storage and dosing of citric acid will be included in the bulk chemical storage upgrade.</p> <p>At Emigrant Creek Dam WTP, lime hoses are hosed out, however the slurry and solids are captured and directed to the drying beds which eliminates the hazard of these waste materials ending up in the dam.</p> <p>Operating Procedures will be finalised for the lime cleaning operations once a permanent solution has been implemented at Nightcap WTP in 2023/2024.</p>

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
			Also see comments relating to C2 - upgrade to bulk storage facility, below.	
Active	C2	Establish appropriate bunding for all chemical storages. Establish and implement procedures for the management of chemical storage areas, including the delivery of chemicals at both Nightcap WTP and Emigrant Creek WTP (and specifically the management of the driveway valve system). Train relevant staff in execution of procedures.	<p>Status: Active</p> <p>Bunded delivery bay and bulk storage facility is still an outstanding item and is currently with planning and delivery for implementation. The upgrade will address bunding of chemical storage tanks and tanker unloading areas. Upgrade of the bulk chemical storage to address environmental risks is on hold pending the completion of a current review of treatment chemicals to address finished water pH issues. Chemical types and storage volumes may change because of the review. In April 2020, a 13kL self-bunded tank was installed at Nightcap WTP to store Caustic Soda. This replaces a 5kL un-bunded tank and reduces the risk of major chemical spill from tank rupture.</p>	<p>The project team for the Nightcap WTP Strategic Review is progressing the Nightcap WTP bulk chemical storage upgrade. A preferred location has been determined for the new facility and further investigations are being undertaken to determine the preferred long term chemical option for disinfection. Once this has been completed, preliminary design of the bulk chemical storage upgrade can proceed. The upgrade will include appropriate bunding in accordance with modern standards.</p> <p>Two 21,000L self-bunded tanks have been purchased and installed for storage of Aluminium Hydro-Chlorate (ACH). A temporary pallet bund is being used for the citric acid. The chlorine tanks are bunded however the bunding is in fair to poor condition and is proposed to be tested and if required, remediated.</p> <p>Recommend this action remain on the list until the Nightcap WTP Chemical Storage Upgrade works are completed in 2023/2024.</p>
Active	C3	Design and implement a stormwater management system to collect and treat runoff from the internal and external areas (incl. chemical storage areas) at Nightcap WTP. To include sealing all drains in bunded areas and removal of all penetrations and valves in bund walls.	<p>Status: Active</p> <p>Stormwater treatment basins have been installed at Nightcap WTP and are designed to stop pollutants in stormwater from entering the dam. Litter baskets have been installed, though it is noted that they were not in place in all drains at the time of site visit.</p> <p>Measures to complete action:</p> <p>Note that litter baskets should be re-installed immediately after being cleaned. Train staff in procedure and update relevant SWMS.</p>	<p>The Nightcap WTP lime dosing hoses are now being cleaned using citric acid re-circulation which eliminates the need for litter baskets and point of discharge collection. Bunds and bund drains, and valves will be addressed as part of the bulk chemical storage upgrade.</p> <p>Recommend this action remain on the list until the Nightcap WTP Chemical Storage Upgrade works are completed in 2023/2024.</p>

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
			Sealing of all drains in bunded areas and removal of all penetrations and valves in bund walls is outstanding and will be addressed as part of bulk chemical storage upgrade. See comments relating to C2.	
Deferred	D6	Review all policies, plans and operational procedures to determine whether there is a need to integrate environmental controls/considerations. Revise plans, policies and operating procedures to reflect the Rous County Council Environmental policy guidance.	Deferred issue due to resource limitation. Environmental hazards /controls / considerations incorporated into work task risk assessments, project management framework, project design and development procedures.	Council's environmental protection commitments have been incorporated into the Land Management policy adopted by Council in April 2021. Environmental controls and considerations have been incorporated into business-as-usual practices across Council operations. Recommend this action be marked complete.
Deferred	D7	Develop Rous County Council policy/procedure on the undertaking of environmental impact assessment (EIA) for activities. This should identify the appropriate level of EIA for various types of activities.	Deferred issue due to resource limitation. Level of EIA is currently determined by the project manager responsible for the planning and design of the project and is generally commensurate to the scale of the project and level of environmental risk identified	The level of environmental assessment is currently determined by the project manager responsible for the planning and delivery of the project. Recommend this action be marked complete.
Deferred	D8	Develop an education module for integration with the staff induction process that introduces the Rous County Council Environmental policy and EMS. Integrate this module into the formal induction process.	Deferred issue due to resource limitation. Induction module not developed for general induction. Individual areas have their own specific inductions, so positions focussed on environmental functions of Council are inducted on Council's Environmental policy.	Council's Land Management policy adheres to the general state legislated principles of environmental protection. New staff are made aware of Council's policies and procedures during induction. Recommend this action be marked complete.
Deferred	D9	Review draft documentation, finalise and implement the following documents as required by the EMS: Register of Objectives and Targets, Environmental Management Program, Environmental Training and Awareness Program and Register, Environmental Document Control File and Register, and the Operational Control Register.	Deferred issue due to resource limitation. Superseded/obsolete. This documentation relates to procedures that support the implementation of an Environmental Management System. When Council adopted the revised Environmental policy on 17/9/2014 it abolished the EMS and so these outstanding procedures effectively became obsolete. Rather than a systems approach, RCC now relies on a risk assessment	This action is obsolete. Recommend this action be removed from the EMS Action List.

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
			approach to identify and address environmental issues.	
Deferred	D11	Prepare an Energy Management Strategy and Plan for all Rous County Council activities and operations. Plan to include review of efficiency, maintenance and use of air-con, lighting, electrical equipment. Provide training to staff. Monitor effectiveness of staff awareness training.	Partially complete by actions completed for C7. Overall Energy Management Strategy not yet started due to resourcing limitations.	Consideration of energy efficiency is a key consideration for renewal and replacement of all Council assets including building facility assets. Energy efficient lighting and air conditioning has recently been installed in Council's administration building and is set on timers and thermostats to minimise energy wastage. An Energy Management Strategy is not a current priority of Council. Recommend this action be removed from the EMS Action List.
Deferred	D12	Review current paper usage, recycling system and waste disposal (incl. organic, trade, hazardous and electronic waste). E-waste includes fluorescent lights, mobile phones, printer cartridges etc. Organise waste type-specific waste collection service if required. Establish a system to monitor/quantify paper consumption and overall waste management performance. Provide training to staff.	When the EMS was abolished following adoption of the existing Environmental policy on 17/9/2014 the majority of the 'aspirational targets' that were identified through the EMS process were relegated to the deferred items listing. Whilst discrete actions relating to on-ground or direct actions were able to be assigned to asset managers, the aspirational targets – such as this were left on the 'deferred list.' Whilst such a scheme (and alternate ways of funding this approach) was considered at the time of the Rous Water restructure, no further action has been taken on this item.	Council has been progressively moving toward less paper usage through implementation of a digital records system. Recycling facilities are provided in staff work facilities as required. E-waste is responsibly recycled or disposed of. Recommend this action be marked complete.
Deferred	D13	Audit water consumption and efficiency within the Rous County Council. Review audit and identify actions as required. Ensure that water conservation measures are reinforced for water users in Rous County Council Centre. Establish a system to monitor/quantify water consumption. Train and educate staff/building occupants.	When the EMS was abolished following adoption of the existing Environmental policy on 17/9/2014 the majority of the 'aspirational targets' that were identified through the EMS process were relegated to the deferred items listing. Whilst discrete actions relating to on-ground or direct actions were able to be assigned to asset managers, the aspirational targets – such as this were left on the 'deferred list.' Whilst such a scheme (and alternate ways of funding this approach) was considered at the time of the Rous Water	Water efficiency programs have been run with staff. Signage and education on efficient water usage is provided through staff facilities. Recommend this action be marked complete.

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
			restructure, no further action has been taken on this item.	
Deferred	LM4	Map and monitor relocated threatened species/ habitats within Rous County Council buffer zones using GIS. Ensure mapping is kept up to date.	When the EMS was abolished following adoption of the existing Environmental policy on 17/9/2014 the majority of the 'aspirational targets' that were identified through the EMS process were relegated to the deferred items listing. Whilst discrete actions relating to on-ground or direct actions were able to be assigned to asset managers, the aspirational targets – such as this were left on the 'deferred list.' Whilst such a scheme (and alternate ways of funding this approach) was considered at the time of the Rous Water restructure, no further action has been taken on this item.	Mapping is maintained by State Government databases. Threatened species/habitat mapping is accessed for environmental impact assessments related to projects as required. Rous regularly engages specialist ecologists to undertake in-field species surveys for project planning purposes to verify threatened species mapping. Duplication of mapping will lead to error or double handling. Recommend this action be removed from the EMS Action List.
Deferred	LM12	Complete the design of a catchment restoration program that shall fund the conduct of on-ground works on private property through the formal certification of carbon credits sequestered in native vegetation establishment. Develop regional partnerships as part of the establishment of this program. Secure formal certification of carbon credits sequestered in Rous County Council revegetation programs on Rous Water owned property.	When the EMS was abolished following adoption of the existing Environmental policy on 17/9/2014 the majority of the 'aspirational targets' that were identified through the EMS process were relegated to the deferred items listing. Whilst discrete actions relating to on-ground or direct actions were able to be assigned to asset managers, the aspirational targets – such as this were left on the 'deferred list.' While such a scheme (and alternate ways of funding this approach) was considered at the time of the Rous Water restructure, no further action has been taken on this item.	Council has developed and is implementing a greenhouse gas abatement strategy which identifies Council's agreed carbon reduction projects. Development of a catchment restoration program related to carbon credits is not a current priority of Council. Recommend this action be removed from the EMS Action List.
Semi-Complete	C6	Review the approved contractors pack with view to the inclusion of the Rous Water Environmental policy and associated procedures into the specification. The purpose of this review is to ensure that any approved contractor has in place an appropriate methodology for	Status: Semi-Complete Contractors' Handbook final is dated June 2014. Note however this information is not routinely provided to contractors. Ensure that contractor's handbook is provided to all contractors	Contractors' Handbook currently being reviewed for currency and whether a handbook is the best form for delivery of this information. Recommend this action remain on the list until a position is adopted on its need and value.

Status	Action No.	Description	GeoLINK Review - March 2021	Rous Staff comment – January 2022
		addressing the environmental impacts of their activities they are performing on behalf of Rous Water.		
Semi-Complete	LM2	Develop written procedure for the recording of catchment inspections.	<p>Status: Semi-Complete</p> <p>Refer to guide entitled <i>Catchment Surveillance Inspections Program</i> that has been established and is stored in hard copy on technical library at depot in sealed box. Inspection program entered into CONFIRM until 2016. Since 2016 catchment inspections have not been recorded through CONFIRM and have only been occurring on ad hoc basis. A suitable inspection frequency should be implemented, and all future inspections recorded through CONFIRM.</p>	<p>Catchment Inspection program and resourcing will be reviewed.</p> <p>Recommend this action remain on the list until a position is adopted.</p>
Semi-Complete	LM8	<p>(i) Ensure that spill control equipment is available at all locations where hazardous chemicals/fuels are stored, and for all vehicles that transport and/or use chemicals/fuels.</p> <p>(ii) Keep a register of spill control equipment.</p> <p>(iii) Conduct a regular inspection of all spill control equipment and ensure that all requirements are kept up to date.</p> <p>(iv) Ensure that all staff that use and/or transport chemicals/fuels have received training in the use of spill control equipment.</p>	<p>Status: Semi-Complete</p> <p>Spill control equipment inspections are recorded in CONFIRM (spill control checks undertaken as part of safety shower monthly checks). Note: all staff identified as handling chemicals have been trained in SWMS 79 and training recorded in PayGlobal HR system. Outstanding items - spill control equipment register, spill kit in all WTPO and WO utes that carry chlorine on a regular basis.</p>	<p>Outstanding items from this action - spill control equipment register, spill kit in all WTP Office and Water Operations vehicles that carry chlorine on a regular basis. This action has been tasked to the Dams and Treatment team to complete.</p> <p>Recommend this action remain on the list until it is completed.</p>

Debt write-off information summary

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That Council receive and note the debt write-off information summary with debts written-off totalling \$699.80 for the period 1 July 2021 to 31 December 2021.

Background

Council's 'Debt Management and Financial Hardship' policy provides that an information summary report be submitted to Council on a bi-annual basis.

As per Council's 'Revenue' policy:

- All debts above \$1,000.00 (ex-GST) may be written off only by resolution of Council.
- Council has delegated to the General Manager the power to write-off debts equal to or below the \$1,000.00 threshold.

The General Manager has delegated authority for the write-off of debts equal to or below:

- \$500.00 to the Group Manager Corporate and Commercial
- \$250.00 to the Finance Manager
- Debts written off equal to or below \$1,000

Debts approved for write-off by Council staff were done so under delegation and in accordance with clauses 131 or 213 of the *Local Government (General) Regulation 2021*.

Debts approved for write-off during the period 1 July 2021 to 31 December 2021 are tabled below:

Table 1:

Customer type	Ref. numbe	Write-off amount	Background	Reason	Approved by
Retail water account	10930	\$349.75	Leak reported by property owner at water meter. Leak was found at meter union on private service line side of water meter and leak would have registered as usage for the quarter.	Debt not lawfully recoverable	Group Manager Corporate and Commercial
Retail water account	10464	\$23.20	Incorrect data was transmitted to the itron from the cyble unit during the quarter.	Debt not lawfully recoverable	Finance Manager
Retail water account	10231	\$326.85	Customer advised that meter number on the account does not match the meter number on the physical meter. Investigation determined that the customer had sold a parcel of land adjoining their current property and that the meter was assigned to the other property.	Debt not lawfully recoverable	Acting Group Manager Corporate and Commercial
	Total	\$699.80			

Debts written off above \$1,000

No debts were approved for write-off by Council resolution during the period 1 July 2021 to 31 December 2021.

Finance

Charges written off during the period 1 July 2021 and 31 December 2021 total \$699.80 and this amount will be included in Council's Annual Report.

Legal

Clause 131(6) of the *Local Government (General) Regulation 2021* requires the General Manager to inform Council of any amounts written off under delegated authority.

Conclusion

Charges totalling \$699.80 were written-off under Council resolution and delegated authority pursuant to clauses 131 or 213 of the *Local Government (General) Regulation 2021*. The next debt write-off information summary report will be included in the August 2022 business paper.

Investments - January 2022

Responsible Officer: Group Manager Corporate and Commercial (Guy Bezrouchko)

Recommendation

That Council receive and note the Investments for January 2022.

Background

Clause 212 of the *Local Government (General) Regulation 2021* and Council's 'Investments' policy require that a report detailing Council's investments be provided. This report has been prepared as at 31 January 2022.

Finance

RBA cash rate

At the RBA's February 2022 meeting, it was decided to leave the cash rate at 0.1%. The 90-day average bank bill swap rate (BBSW) has increased to 0.07%. The low rate will continue to put pressure on interest yields in the foreseeable future.

Total funds invested as at 31 January 2022 = \$39,708,321

Return for January 2022 = 0.61%

The weighted average return on funds invested for the month of January 2022 was 0.61%. This represents an increase of 1 basis point compared to the September 2021 result (0.60%) and is 54 basis points above Council's benchmark (the average 90-day BBSW rate of 0.07%) (Refer: Graph D2).

Interest earned for January 2022 = \$16,255

Budget forecast for interest revenue to decrease by \$156,500

'Year to Date' interest earned of \$114,698 has resulted in an unfavourable budget variance of \$94,135 when compared to the original pro-rata budget of \$208,833. (Refer: Attachment 1). The primary reason for the variance is that actual interest rates available in the market are well below that used in the estimates prepared in April 2021.

The original budget has been reviewed, based on current market rates and the forecast available portfolio balance, with the adjusted forecast investment interest for 30 June 2022 reduced by \$156,500 for a revised budget estimate of \$201,500.

A decrease of \$8,200 for Retail, \$9,000 for Fleet, \$3,300 for Richmond Water Laboratories and \$136,000 for Bulk Water will be processed through the December Quarterly Budget Review (refer to separate agenda item).

Cheque account balance as at 31 January 2022 = \$120,864

Ethical holdings represent 42.82% of the total portfolio

Current holdings in Ethical Financial Institutions equals \$17,000,000. The assessment of Ethical Financial Institutions is undertaken using www.marketforces.org.au which is an affiliate project of the Friends of the Earth Australia (Refer: Graph D4).

Legal

All investments are in accordance with section 625 of the *Local Government Act 1993*, clause 212 of the *Local Government (General) Regulation 2021* and Council's 'Investment' policy.

Conclusion

A report on investments is required to be submitted to Council. As at 31 January 2022, investments total \$39,708,321 and the average rate of return is estimated at 0.61%.

Attachments

1. Investment analysis
2. Investment by type
3. Investment by Institution
4. Total funds invested - comparisons
5. Summary of indebtedness

Rous County Council – Investment analysis report 31 January 2022

Attachment 1

Funds Invested With	S & P Local Long Term Rating	Product Name	Ethical ADIs	Lodgement Date	Maturity Date	% of Portfolio	31 Jan 22 Balance	Rate of Return	Monthly Interest	Year-to-Date Interest
CBA Business Online Saver	AA-	CBA-BOS	No	At call		10.60	5,608,321.40	1.20	827.06	8,951.42
Bank of Queensland	BBB+	TD	Yes	20/10/2020	18/10/2022	1.26	500,000.00	0.80	339.73	2,356.16
Commonwealth Bank of Australia	AA-	TD	N/A	2/2/2021	1/2/2022	2.52	1,000,000.00	0.43	365.21	2,532.88
Commonwealth Bank of Australia	AA-	TD	N/A	9/2/2021	8/2/2022	2.52	1,000,000.00	0.41	348.22	2,415.07
Commonwealth Bank of Australia	AA-	TD	N/A	16/2/2021	15/2/2022	2.52	1,000,000.00	0.41	348.22	2,415.07
Commonwealth Bank of Australia	AA-	TD	N/A	23/2/2021	22/2/2022	1.26	500,000.00	0.42	178.36	1,236.99
ING Bank Aust Ltd	A	TD	No	26/2/2021	1/3/2022	2.52	1,000,000.00	0.40	339.73	2,356.16
ING Bank Aust Ltd	A	TD	No	2/3/2021	8/3/2022	2.52	1,000,000.00	0.40	339.73	2,356.16
Commonwealth Bank of Australia	AA-	TD	N/A	2/3/2021	1/3/2022	2.52	1,000,000.00	0.44	373.70	2,591.78
Commonwealth Bank of Australia	AA-	TD	N/A	4/3/2021	1/3/2022	2.52	1,000,000.00	0.46	390.68	2,709.59
MyState Bank Limited	BBB+	TD	Yes	4/5/2021	10/5/2022	2.52	1,000,000.00	0.50	424.66	2,945.21
Bank of Queensland	BBB+	TD	Yes	11/6/2021	19/4/2022	2.52	1,000,000.00	0.40	339.73	2,356.16
Bank of Queensland	BBB+	TD	Yes	11/6/2021	31/5/2022	2.52	1,000,000.00	0.40	339.73	2,356.16
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	22/3/2022	2.52	1,000,000.00	0.42	356.71	2,473.97
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	5/4/2022	2.52	1,000,000.00	0.42	356.71	2,473.97
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	3/5/2022	2.52	1,000,000.00	0.43	365.21	2,532.88
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	17/5/2022	2.52	1,000,000.00	0.44	373.70	2,591.78
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	14/6/2022	2.52	1,000,000.00	0.45	382.19	2,650.68
Commonwealth Bank of Australia	AA-	TD	No	11/6/2021	28/6/2022	2.52	1,000,000.00	0.46	390.68	2,709.59
ING Bank Aust Ltd	A	TD	No	17/6/2021	21/6/2022	2.52	1,000,000.00	0.40	339.73	2,356.16
Bank of Queensland	BBB+	TD	Yes	22/6/2021	22/2/2022	2.52	1,000,000.00	0.45	382.19	2,650.68
Commonwealth Bank of Australia	AA-	TD	N/A	6/7/2021	5/7/2022	2.52	1,000,000.00	0.41	348.22	2,358.90
Bank of Queensland	BBB+	TD	Yes	24/8/2021	23/8/2022	1.26	500,000.00	0.45	191.10	992.47
Bank of Queensland	BBB+	TD	Yes	31/8/2021	2/8/2022	1.26	500,000.00	0.43	182.60	907.12
AMP Bank	BBB	TD	No	14/9/2021	13/9/2022	1.26	500,000.00	0.45	191.10	863.01
ME Bank	BBB+	TD	No	21/9/2021	20/9/2022	2.52	1,000,000.00	0.40	339.73	1,457.53
MyState Bank Limited	BBB+	TD	Yes	28/9/2021	27/9/2022	1.26	500,000.00	0.45	191.10	776.71
Commonwealth Bank of Australia	AA-	TD	No	5/10/2021	4/10/2022	2.52	1,000,000.00	0.36	305.75	1,173.70
Westpac Banking Corporation	AA-	TD	No	12/10/2021	11/10/2022	1.26	500,000.00	0.40	169.86	613.70
Westpac Banking Corporation	AA-	TD	N/A	19/10/2021	18/10/2022	2.52	1,000,000.00	0.46	390.68	1,323.29

Funds Invested With	S & P Local Long Term Rating	Product Name	Ethical ADIs	Lodgement Date	Maturity Date	% of Portfolio	31 Jan 22 Balance	Rate of Return	Monthly Interest	Year-to-Date Interest
Westpac Banking Corporation	AA-	TD	No	26/10/2021	25/10/2022	1.26	500,000.00	0.49	208.08	657.81
Judo Bank	BBB-	TD	Yes	2/11/2021	1/11/2022	1.26	500,000.00	1.01	428.90	1,259.04
Summerland Credit Union	UNRATED	TD	Yes	9/11/2021	6/12/2022	1.26	500,000.00	0.65	276.03	747.95
AMP Bank	BBB	TD	No	16/11/2021	8/11/2022	1.26	500,000.00	1.00	424.66	1,054.79
AMP Bank	BBB	TD	No	16/11/2021	15/11/2022	1.26	500,000.00	1.00	424.66	1,054.79
ME Bank	BBB+	TD	No	23/11/2021	22/11/2022	2.52	1,000,000.00	0.65	552.05	1,246.58
Auswide Bank Ltd	BBB+	TD	Yes	30/11/2021	29/11/2022	2.52	1,000,000.00	0.80	679.45	1,380.82
Judo Bank	BBB-	TD	Yes	30/11/2021	22/11/2022	1.26	500,000.00	1.10	467.12	949.32
AMP Bank	BBB	TD	No	30/11/2021	29/11/2022	1.26	500,000.00	1.00	424.66	863.01
Westpac Banking Corporation	AA-	TD	No	7/12/2021	6/12/2022	2.52	1,000,000.00	0.58	492.60	889.86
ING Bank Aust Ltd	A	TD	No	7/12/2021	13/12/2022	2.52	1,000,000.00	0.60	509.59	920.55
Westpac Banking Corporation	AA-	TD	No	4/1/2022	4/1/2023	1.26	500,000.00	0.68	260.82	260.82
National Australia Bank Limited	AA-	TD	No	11/1/2022	10/1/2023	2.52	1,000,000.00	0.65	373.97	373.97
Commonwealth Bank of Australia	AA-	TD	N/A	18/1/2022	18/1/2023	2.52	1,000,000.00	0.50	191.78	191.78
MATURED TDs									328.36	34,361.51
						100.00	39,708,321.40	0.61	16,254.73	114,697.58

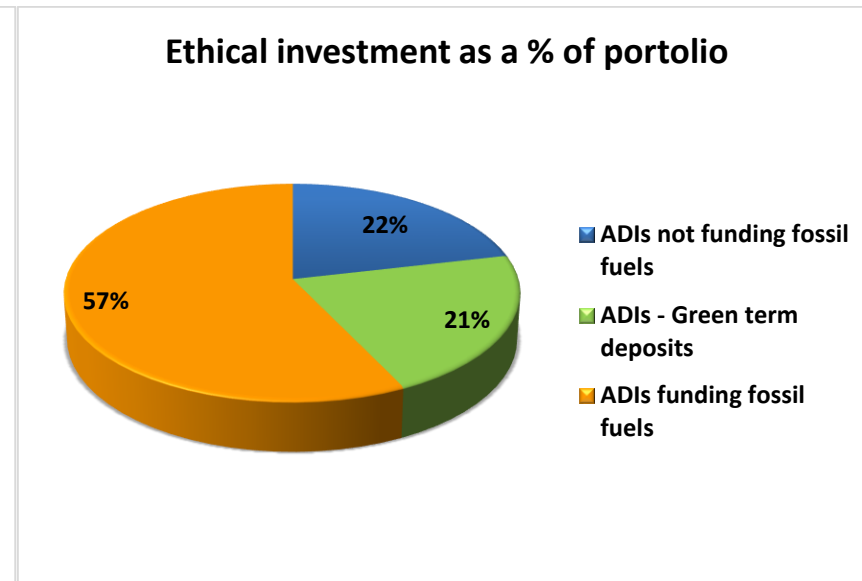
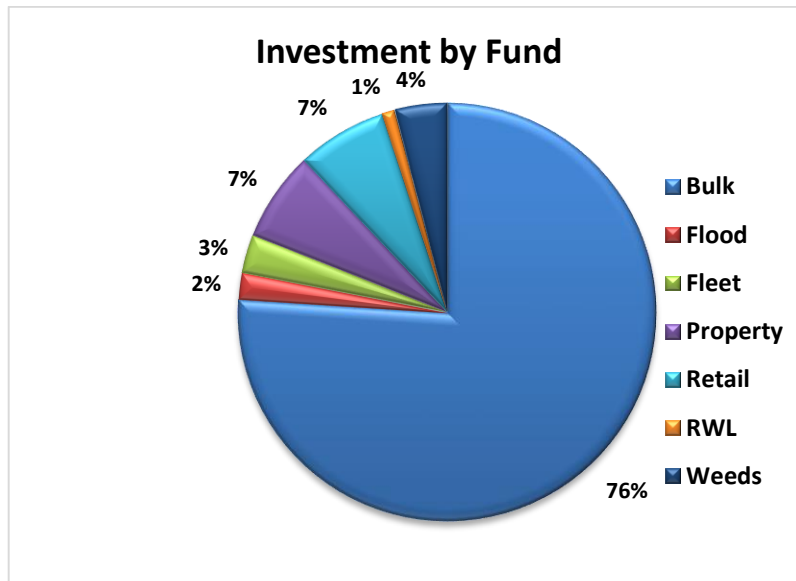
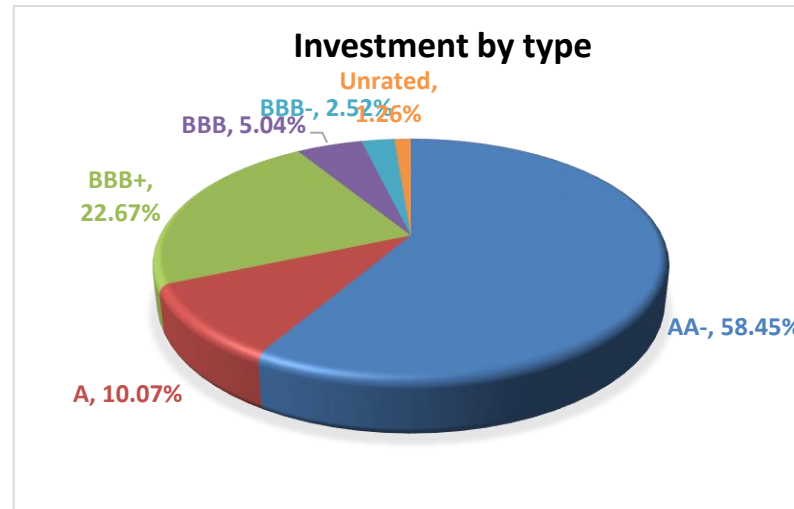
Total Investment Holdings

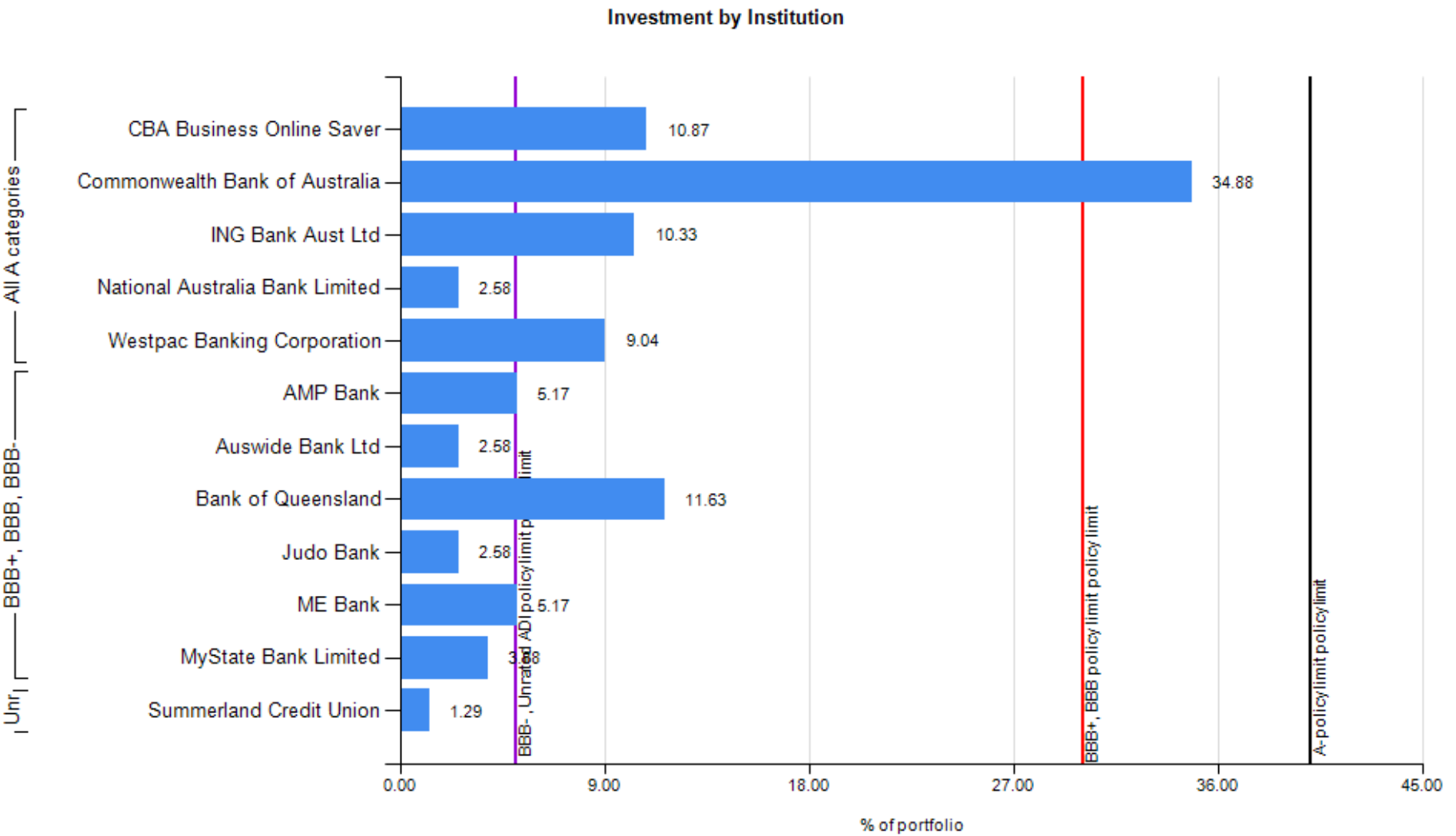
100.00	39,708,321.40	16,254.73	114,697.58
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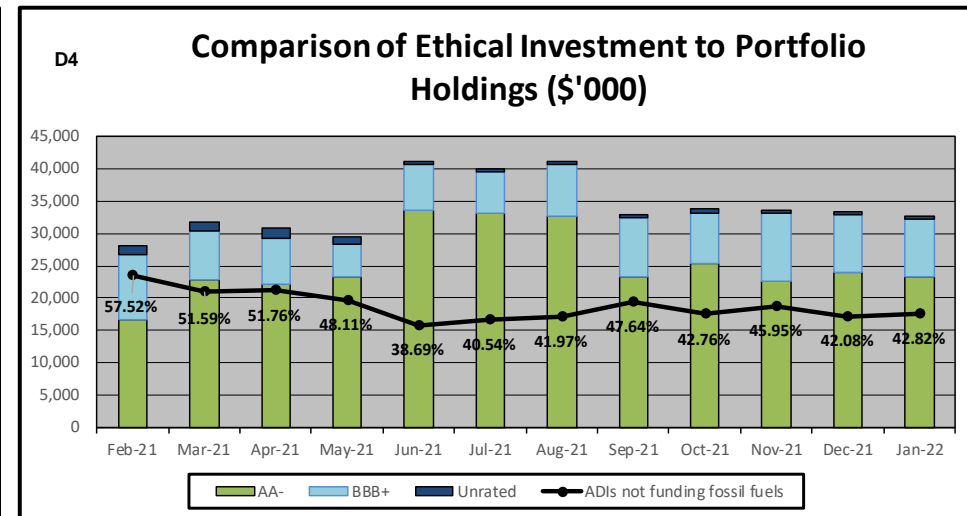
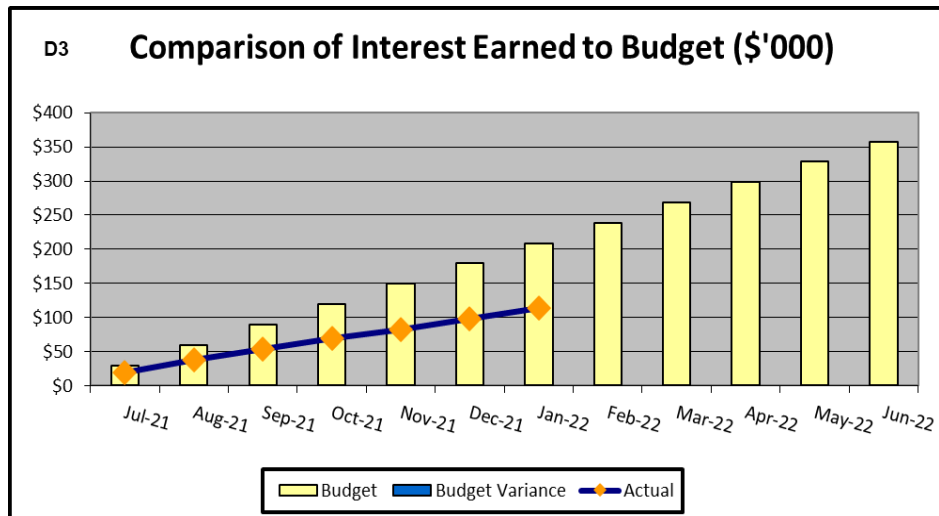
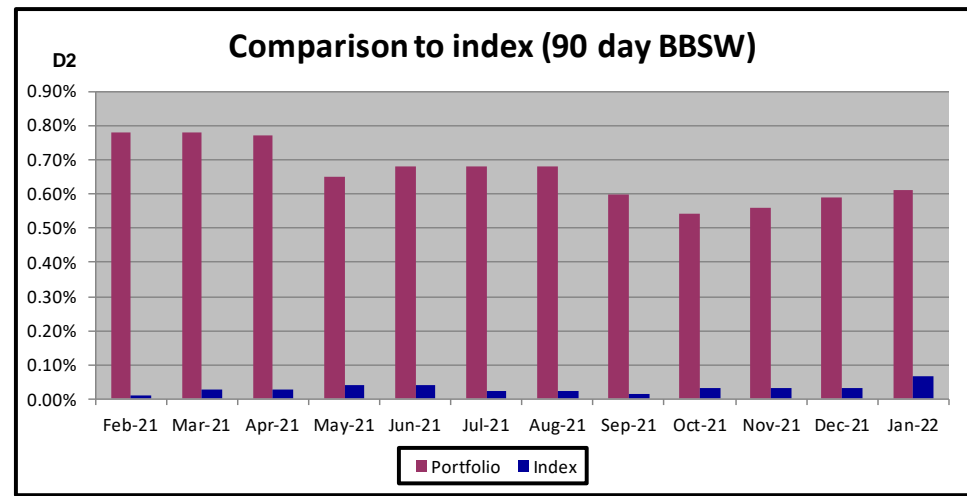
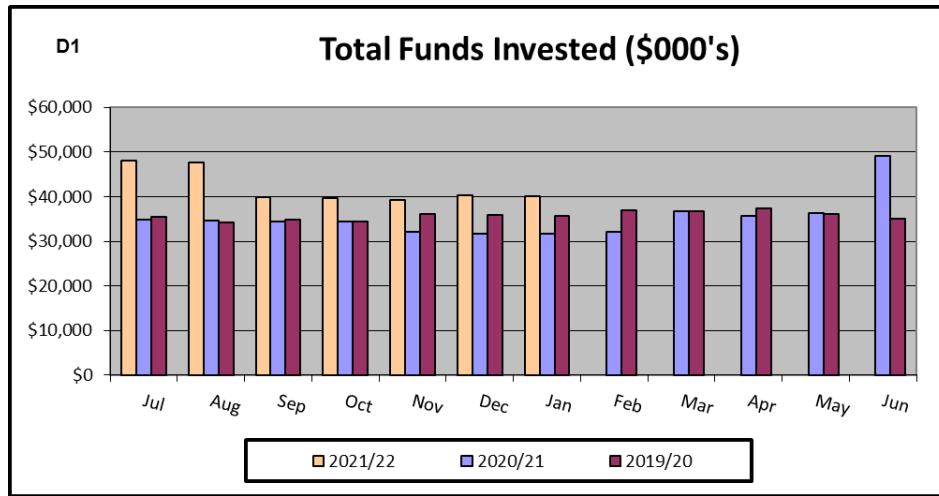
Total YTD Interest	114,697.58
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Deposits with Australian Deposit-taking institutions (ADI) are Government.
Guaranteed for balances totalling up to \$250,000 per customer, per institution.

Budget Interest @ 31 January 2022	208,833.33
Budget variance	(94,135.75)







Summary of indebtedness as at 31 January 2022

Information	Loan #1	Loan #2	Loan #3	Loan #4	Loan #5	Loan #6	Loan #7	Total
Institution	CBA	CBA	CBA	Dexia	NAB	NAB	Tcorp	
Principal Borrowed	\$ 2,000,000	\$ 3,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 13,500,000	\$ 58,500,000
Date Obtained	9-Jun-04	31-May-05	31-May-06	21-Feb-07	31-May-07	25-Sep-07	7-Jun-21	
Term (Years)	20	20	20	20	20	20	20	
Interest Rate	6.82%	6.25%	6.37%	6.40%	6.74%	6.85%	2.68%	
Date Due	10-Jun-24	31-May-25	31-May-26	21-Feb-27	31-May-27	25-Sep-27	7-Jun-41	
Annual Commitment	\$ 184,785	\$ 264,921	\$ 891,595	\$ 893,507	\$ 917,390	\$ 925,933	\$ 876,390	\$ 4,954,520
Principal Repaid LTD	\$ 1,581,812	\$ 2,178,588	\$ 6,558,511	\$ 6,226,708	\$ 5,827,221	\$ 5,497,402	\$ 257,295	\$ 28,127,538
Interest Incurred LTD	\$ 1,651,927	\$ 2,192,603	\$ 7,261,213	\$ 7,178,162	\$ 7,474,928	\$ 7,465,655	\$ 180,900	\$ 33,405,389
Principal Outstanding	\$ 418,188	\$ 821,412	\$ 3,441,489	\$ 3,773,292	\$ 4,172,779	\$ 4,502,599	\$ 13,242,705	\$ 30,372,462
Interest Outstanding	\$ 43,775	\$ 105,811	\$ 570,689	\$ 694,998	\$ 893,562	\$ 1,064,887	\$ 3,846,904	\$ 7,220,626

Water production and usage - January 2022

Responsible Officer: Group Manager Operations (Adam Nesbitt)

Recommendation

That the report be received and noted.

Background

The table below is the January 2022 bulk water sales to the constituent councils in kilolitres compared to the corresponding January sales for 2021 and 2020.

Council	Jan 2020 (kL)	Jan 2021 (kL)	Jan 2022 (kL)	% of Total Sales
Ballina Shire Council	360,405	329,897	313,013	37.7%
Byron Shire Council	237,933	234,381	222,702	26.8%
Lismore City Council	258,627	253,288	243,023	29.3%
Richmond Valley Council	57,332	55,405	51,616	6.2%
Total monthly consumption constituent councils	914,297	872,971	830,354	

Water usage - constituent councils

Figure 1 shows combined monthly bulk water consumption and rainfall at Rocky Creek Dam for the previous two years.

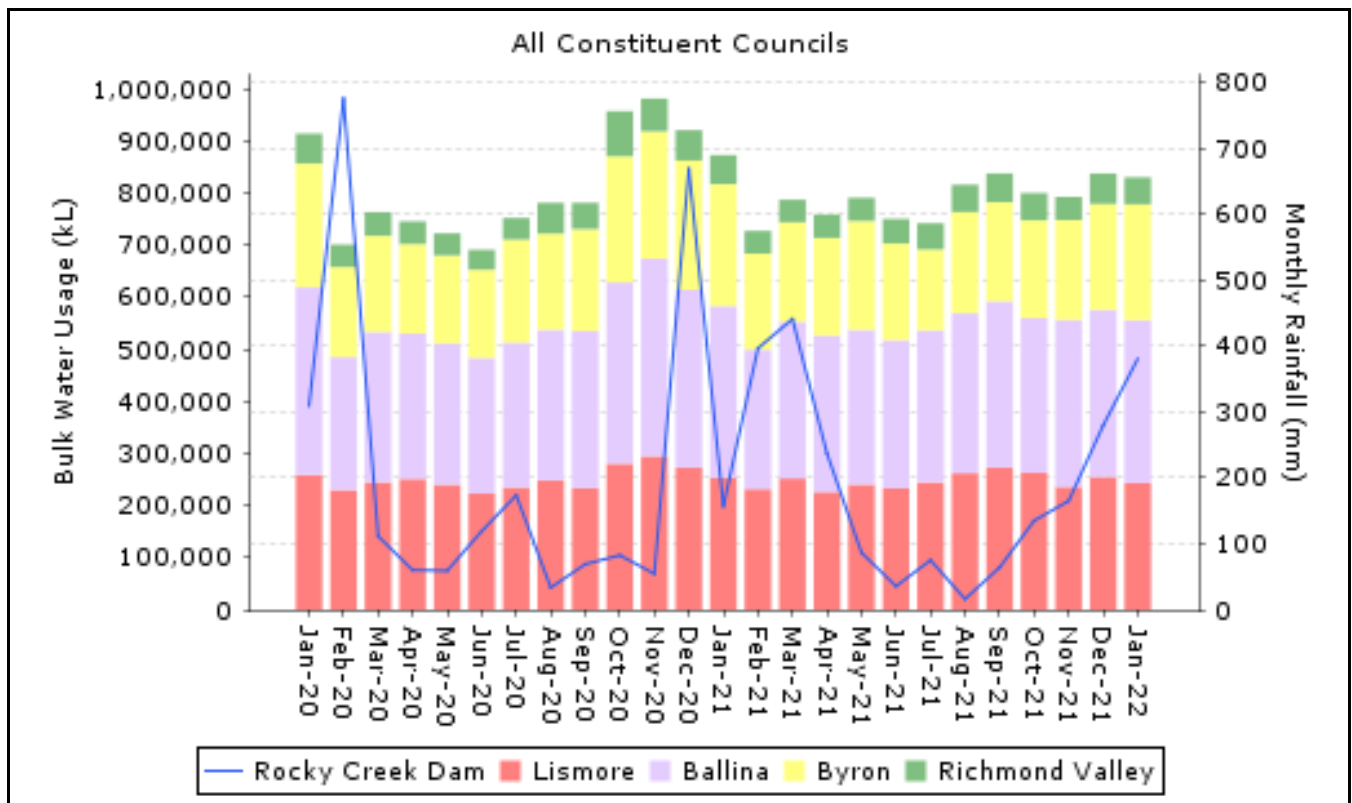


Figure 1: Total monthly consumption by constituent councils and rainfall

Figure 2 shows total bulk water sales for the financial year to date compared with the same period for the previous two years.

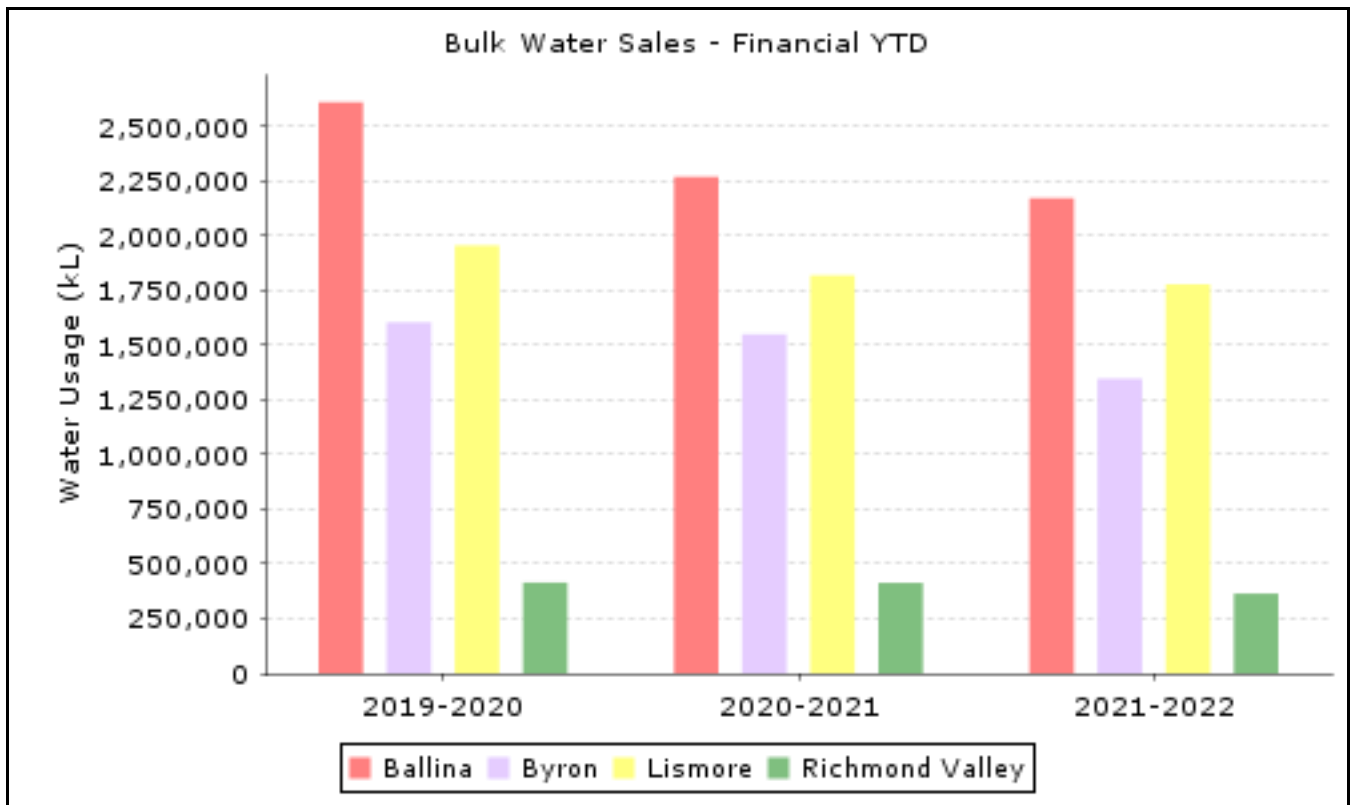


Figure 2: Bulk water sales by constituent councils - 1 July to 31 January

Figure 3 and 4 shows total usage of individual commercial water fill stations for the financial year to date compared with the same period for the previous two years.

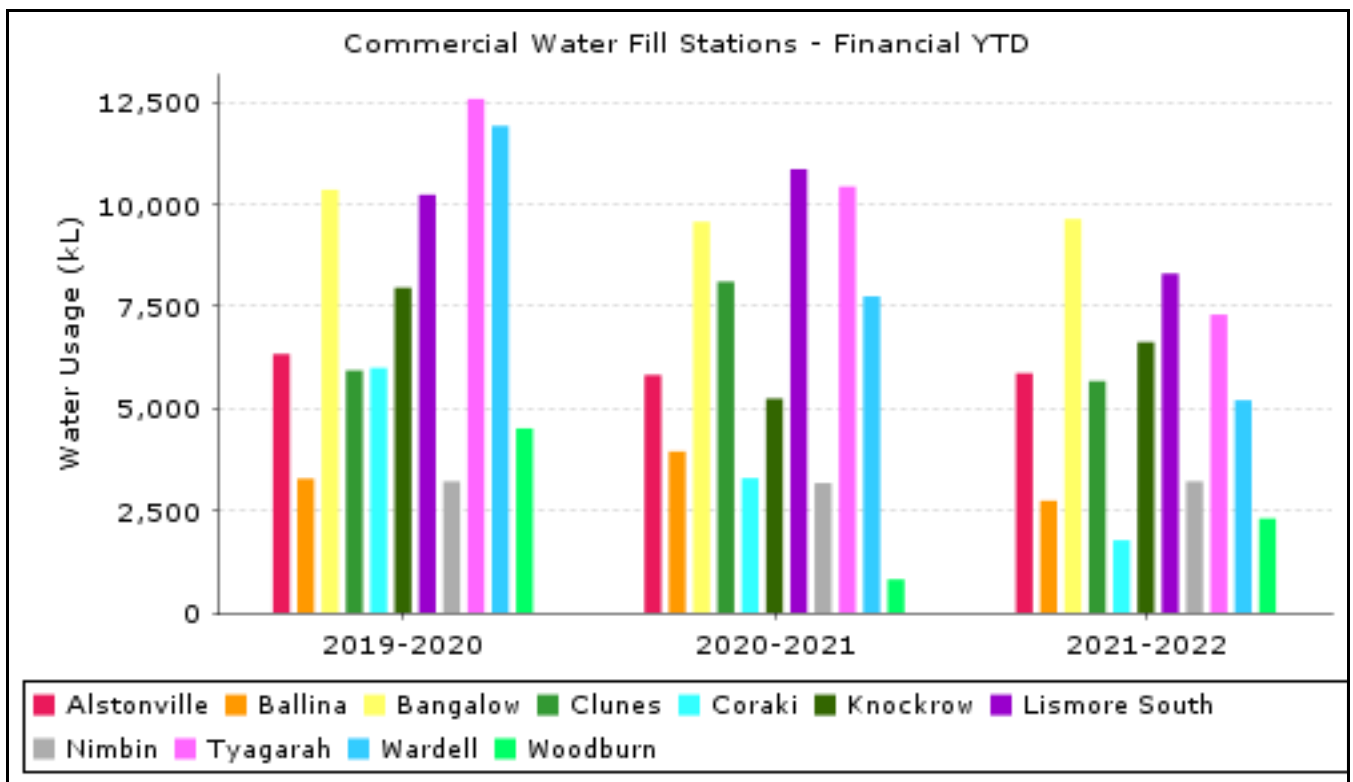


Figure 3: Comparison of commercial water fill stations total consumption - 1 Jul to 31 Jan

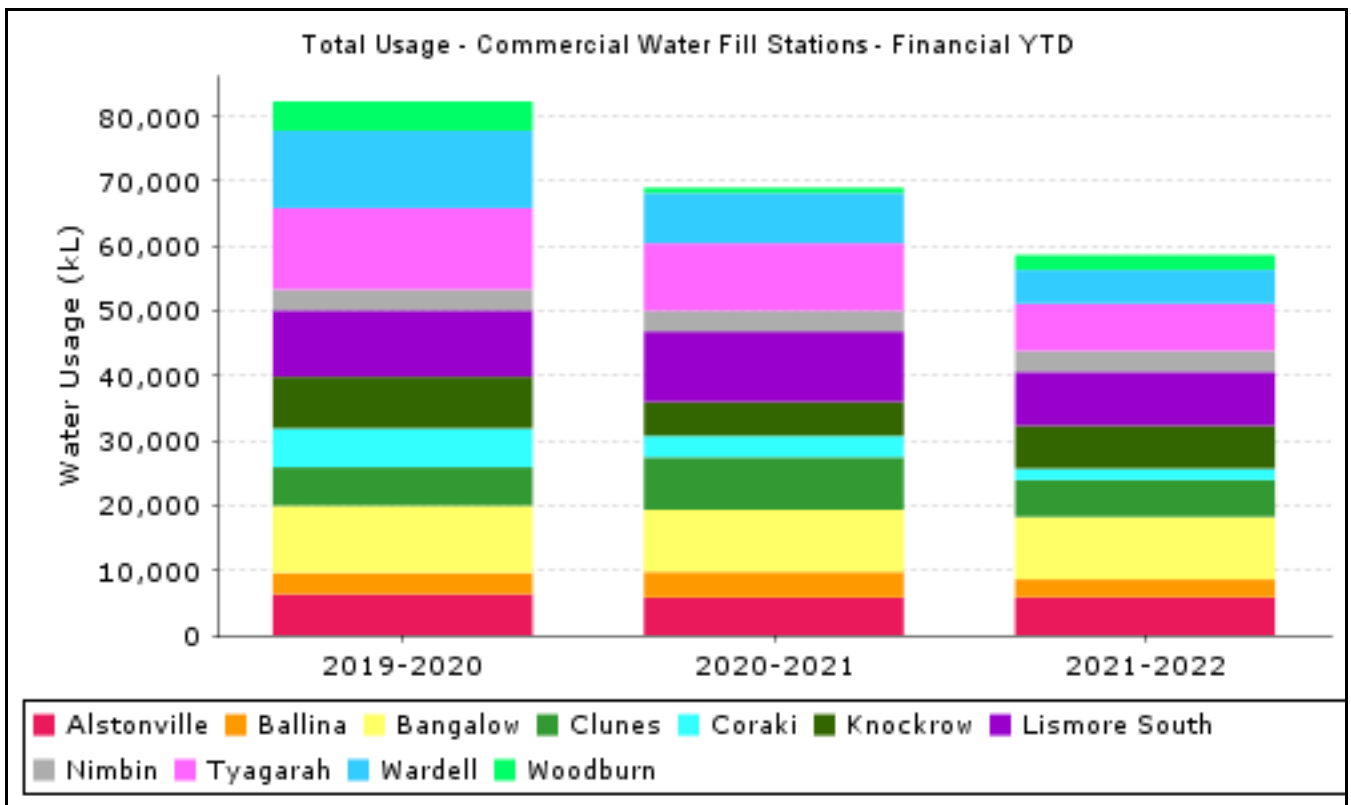


Figure 4: Total usage of commercial water fill stations - 1 July to 31 January

Figure 5 shows combined water fill station monthly consumption for the previous two years. Rainfall data is from the rain gauge at Rocky Creek Dam.

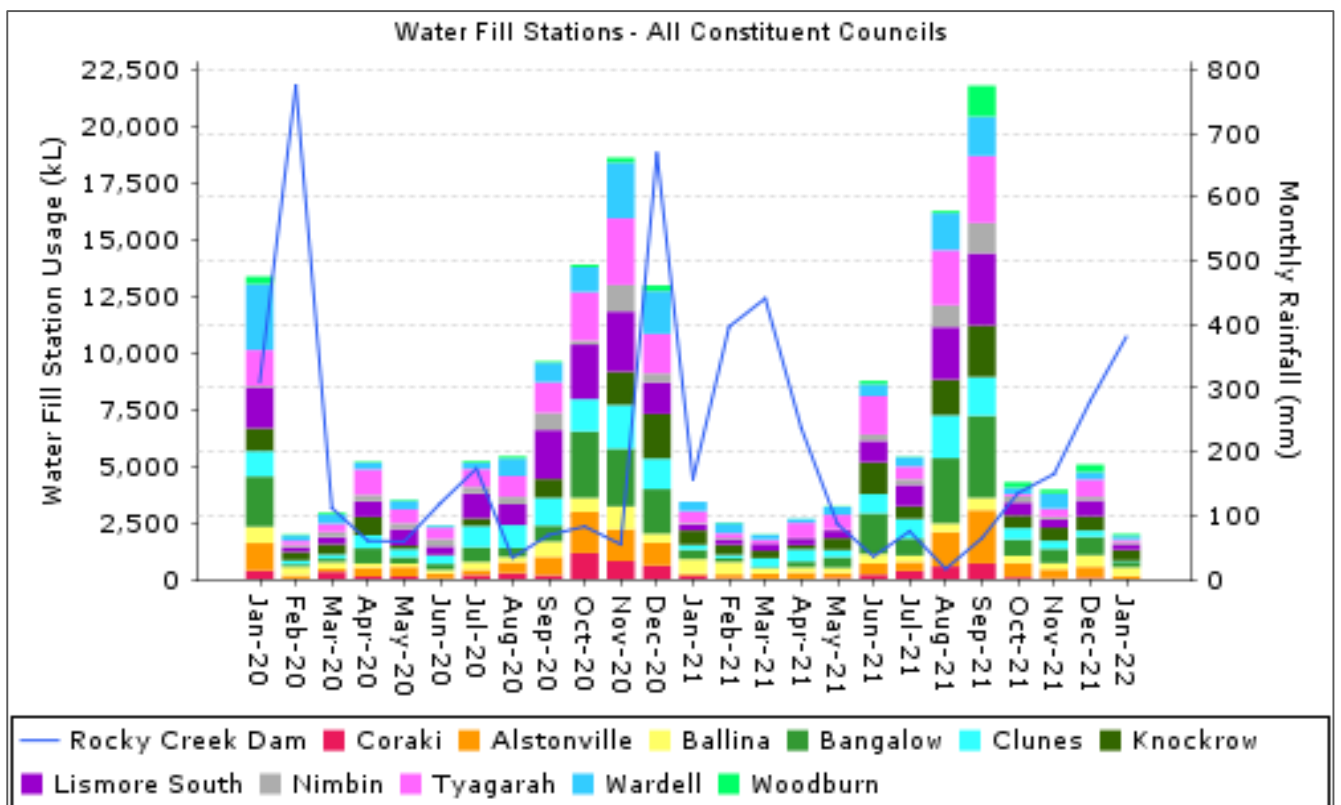


Figure 5: Total monthly consumption for commercial water fill stations and rainfall

Source contribution

- Rocky Creek Dam capacity as of 31 January 2022 was 100.3%
- Emigrant Creek Dam capacity as of 31 January 2022 was 102.8%

Source	January 2022 (kL)		Cumulative Total 2021-2022 (kL)	
Rocky Creek Dam	853,138	96.53%	4,821,261	76.82%
Wilson River	1	0.00%	1,042,551	16.61%
Emigrant Creek Dam	30,668	3.47%	411,989	6.56%
Alstonville Plateau Bores	13	0.00%	13	0.00%
Coastal Sands	0	0.00%	0	0.00%
	883,820		6,275,814	

Rocky Creek Dam

Figure 6 shows Rocky Creek Dam current water level and compares to previous years when levels reached lowest recorded Dam level. Rainfall data is for the current financial year only.

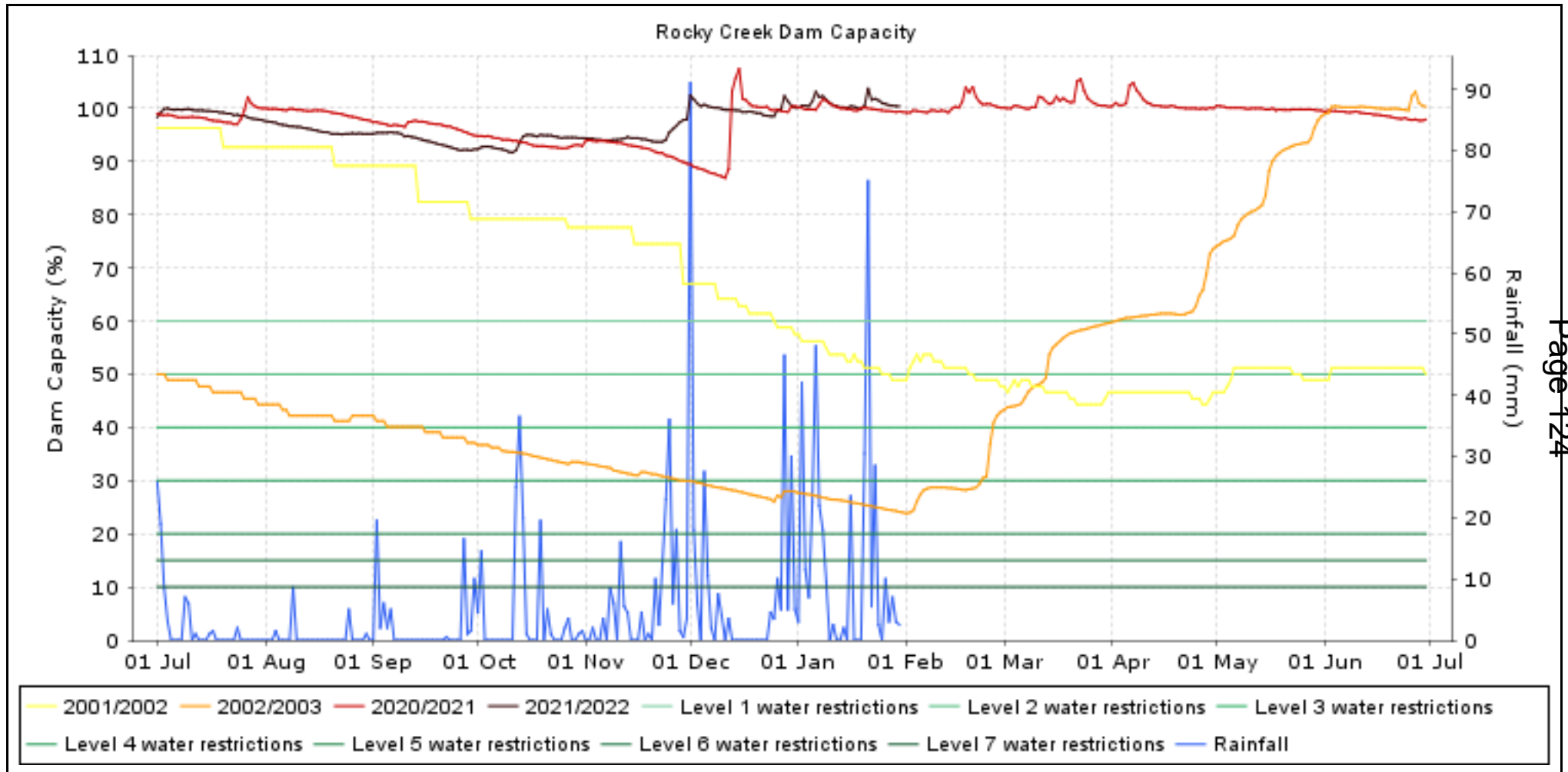


Figure 6: Rocky Creek Dam capacity and rainfall

Emigrant Creek Dam

Figure 7 shows Emigrant Creek Dam current water level and compares to previous two years. Rainfall data is for the current financial year only.

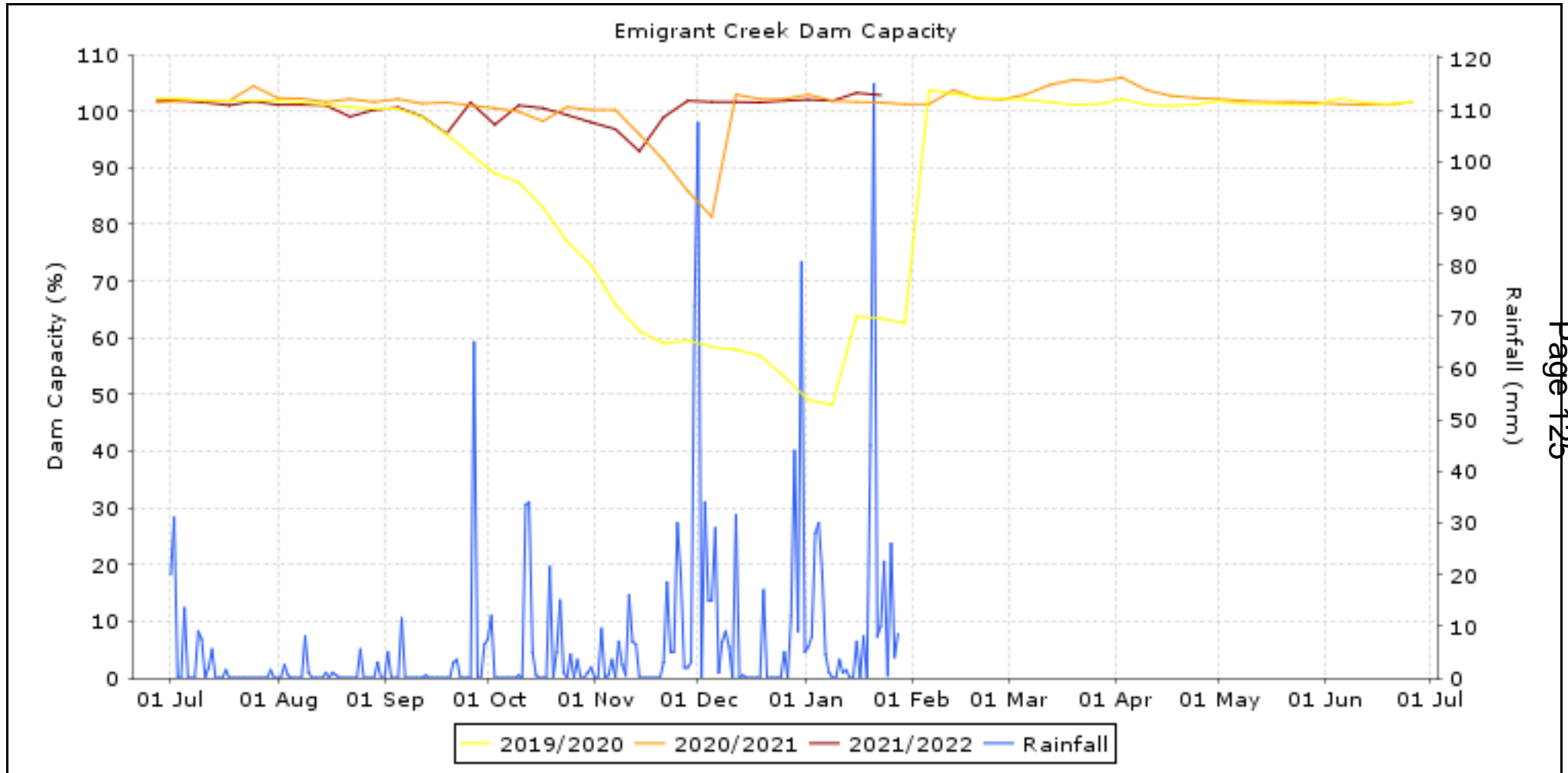


Figure 7: Emigrant Creek Dam capacity and rainfall

Monthly consumption by Ballina Shire Council

Figure 8 shows monthly consumption for Ballina Shire Council area for the previous two years. Rainfall data is from the Bureau of Meteorology rainfall station Ballina Airport.

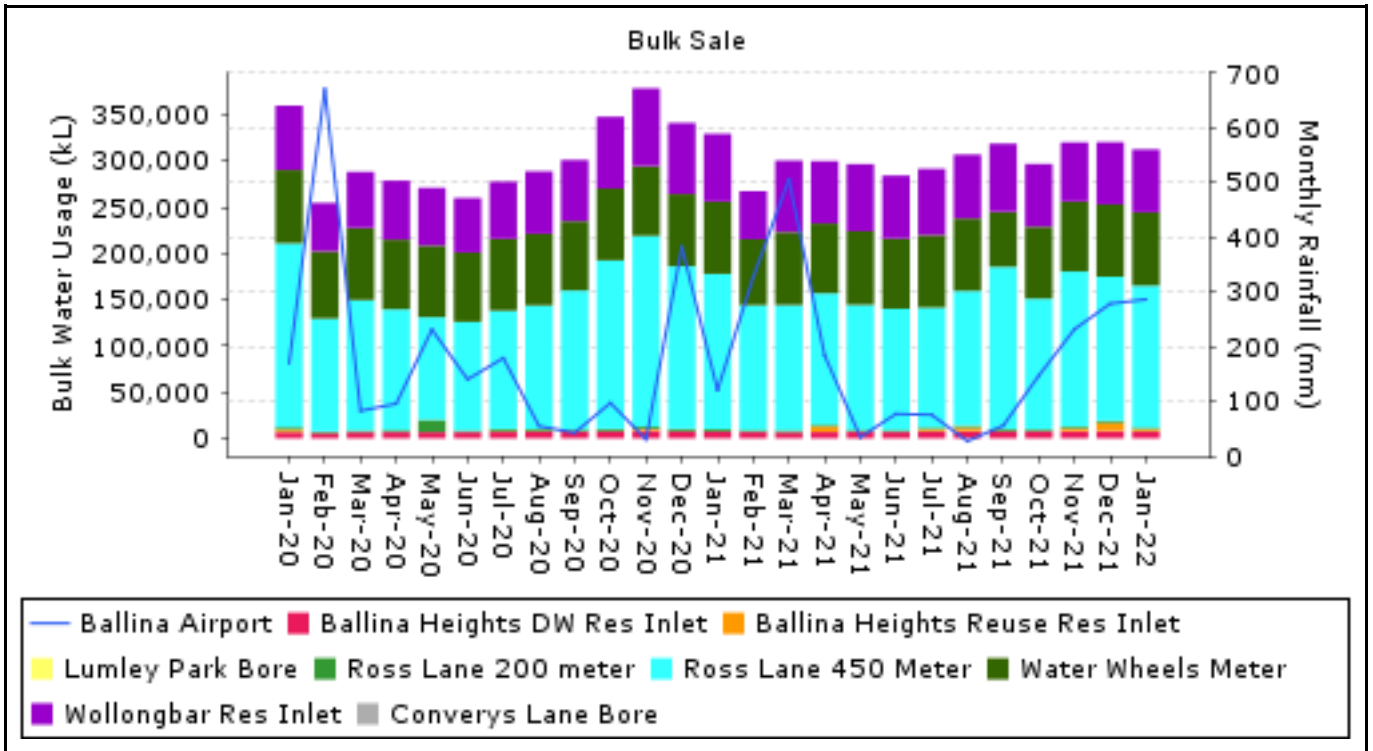


Figure 8: Monthly consumption and rainfall - Ballina Shire Council

Figure 9 shows monthly consumption for water fill stations for Ballina Shire Council and the rainfall for the previous two years.

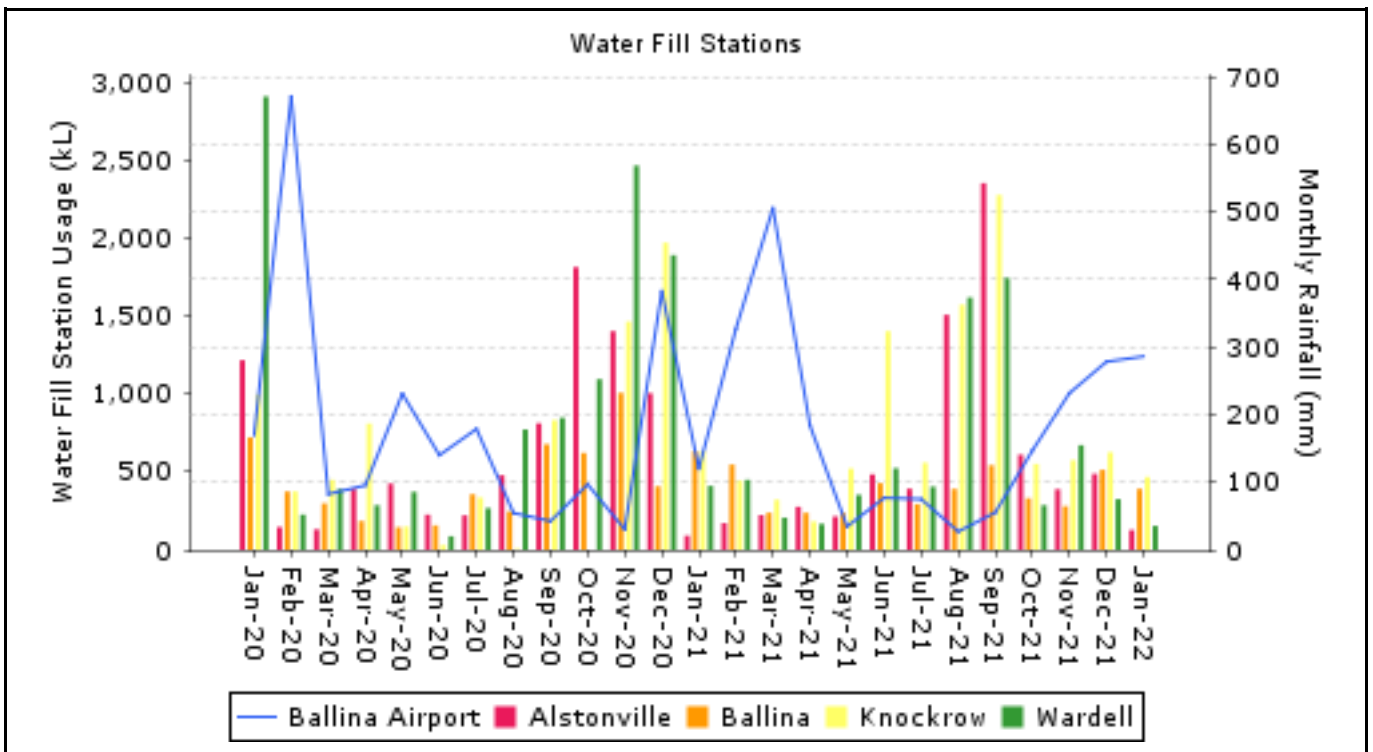


Figure 9: Monthly consumption commercial water fill station and rainfall

Figure 10 shows total usage of individual commercial water fill stations for the financial year to date compared with the previous two years.

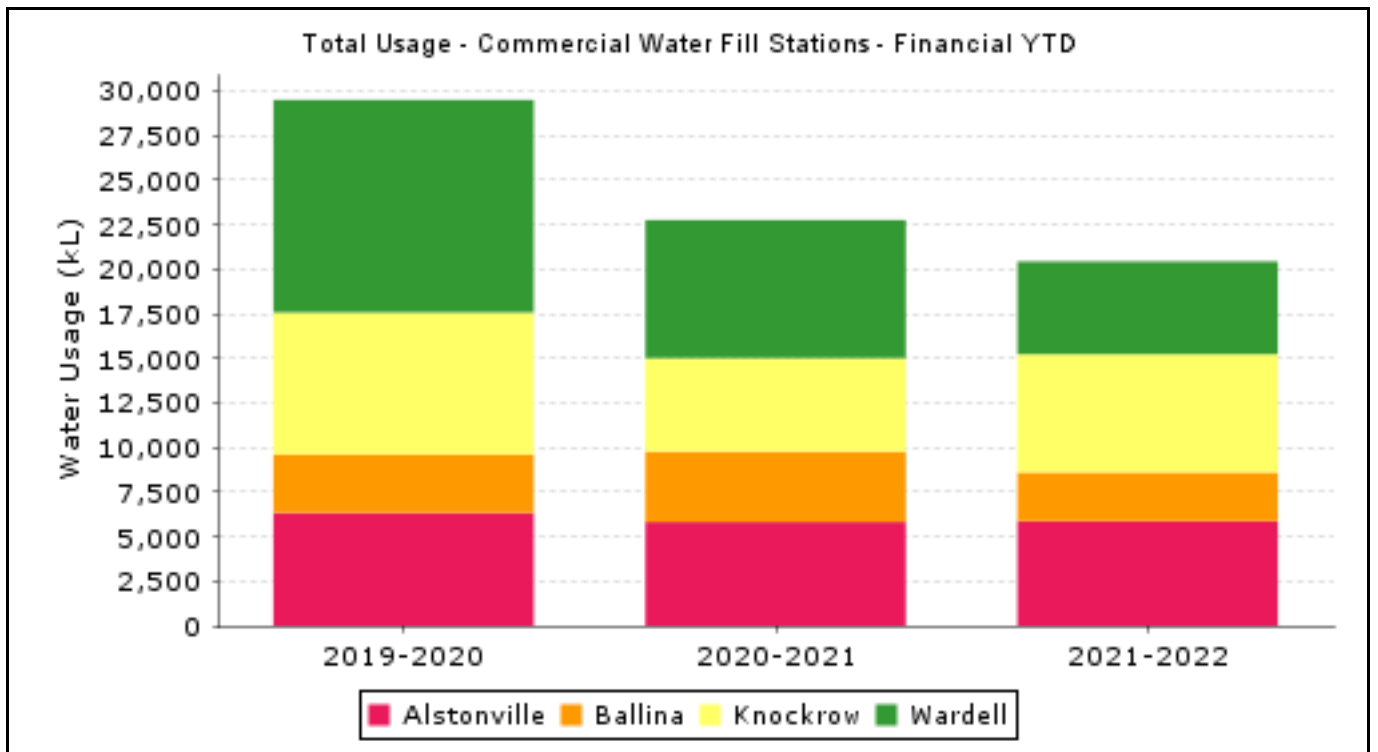


Figure 10: Total usage of commercial water fill stations - 1 July to 31 January

Monthly consumption by Byron Shire Council

Figure 11 shows monthly consumption for Byron Shire Council area for the previous two years. Rainfall data is from the Bureau of Meteorology rainfall station Cape Byron.

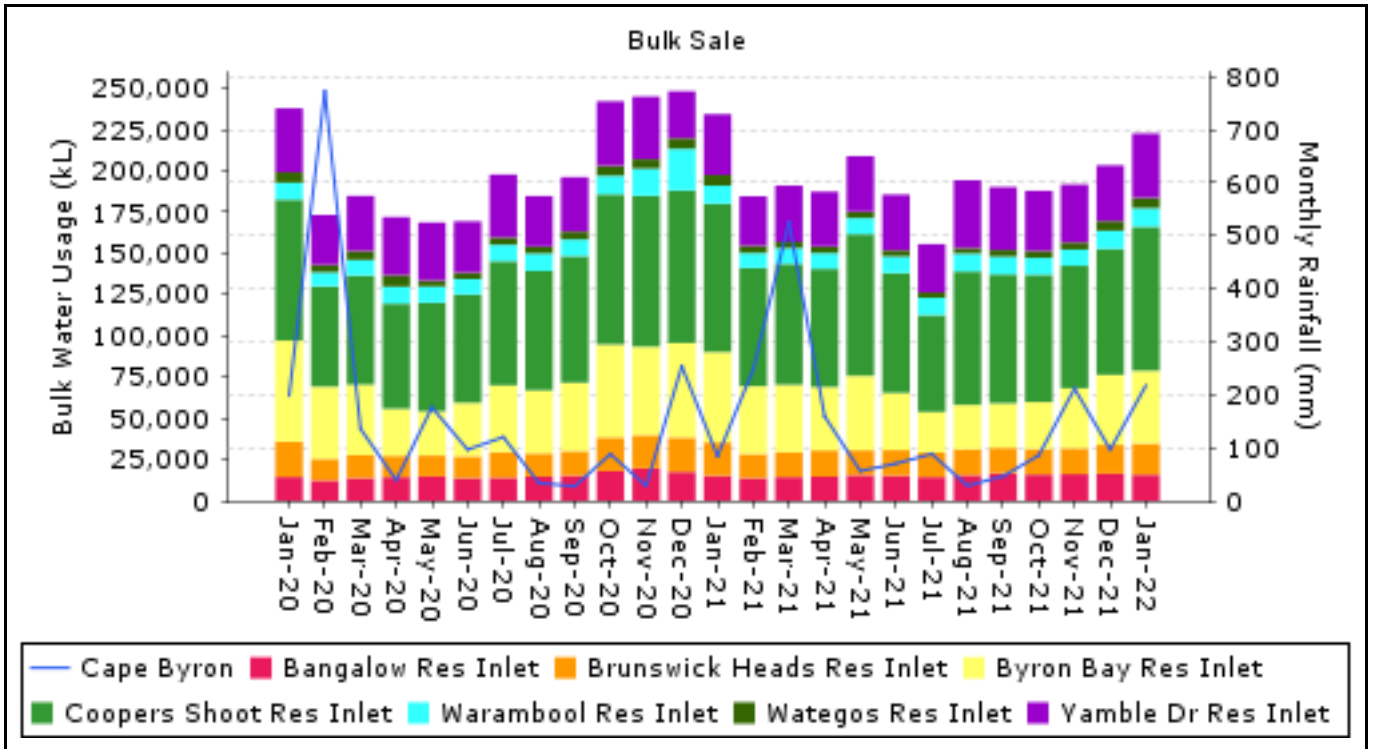


Figure 11: Monthly consumption and rainfall - Byron Shire Council

Figure 12 shows monthly consumption for water fill stations for Byron Shire Council and the rainfall for the previous two years.

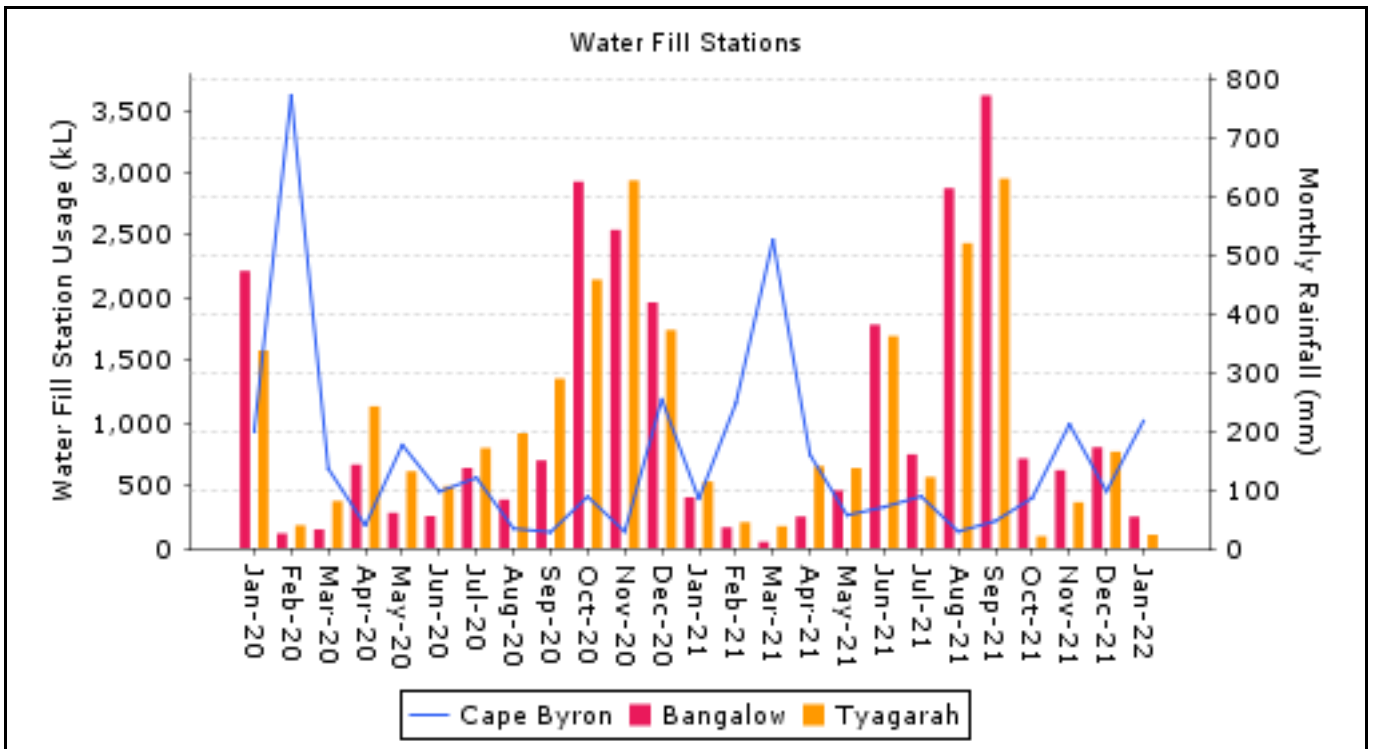


Figure 12: Monthly consumption commercial water fill station and rainfall

Figure 13 shows total usage of individual commercial water fill stations for the financial year to date compared with the previous two years.

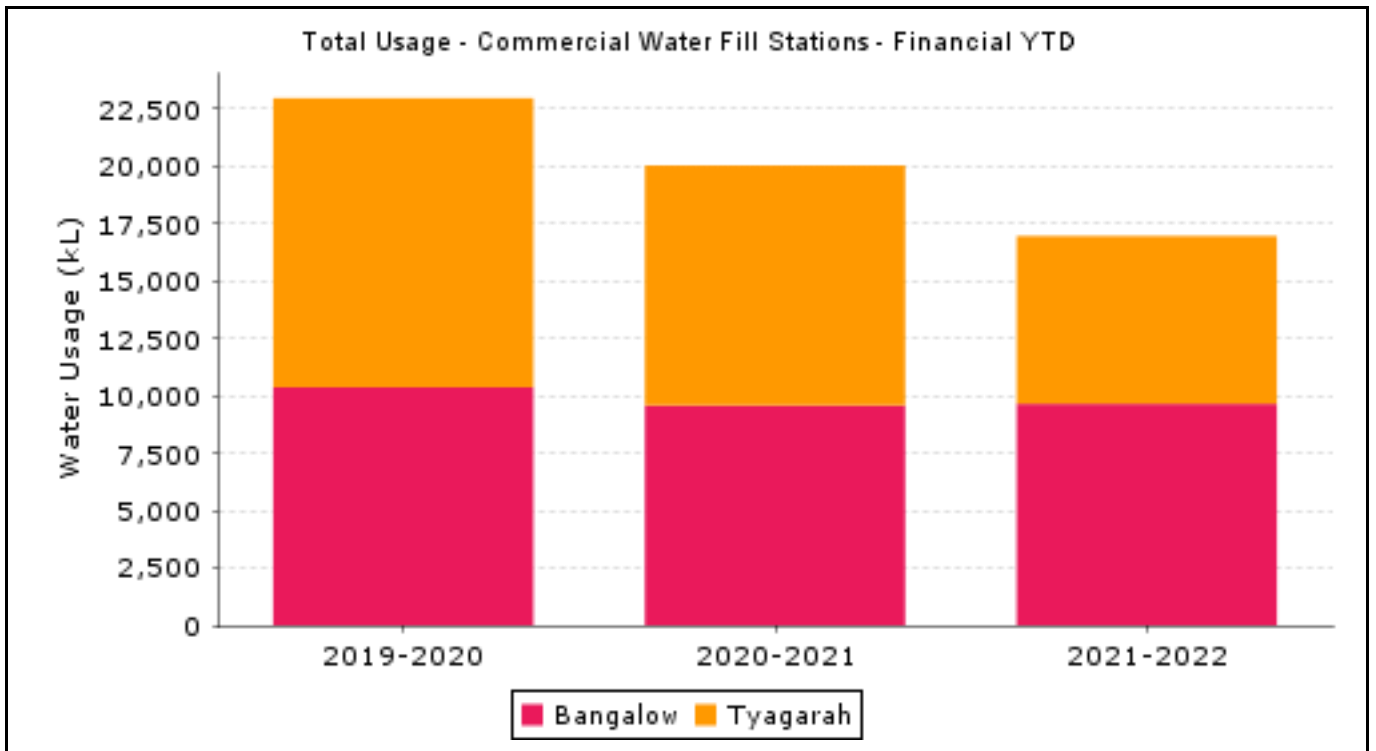


Figure 13: Total usage of commercial water fill station - 1 July to 31 January

Monthly consumption by Lismore City Council

Figure 14 shows monthly consumption for Lismore City Council area for the previous two years. Rainfall data is from the Bureau of Meteorology rainfall station Lismore Airport.

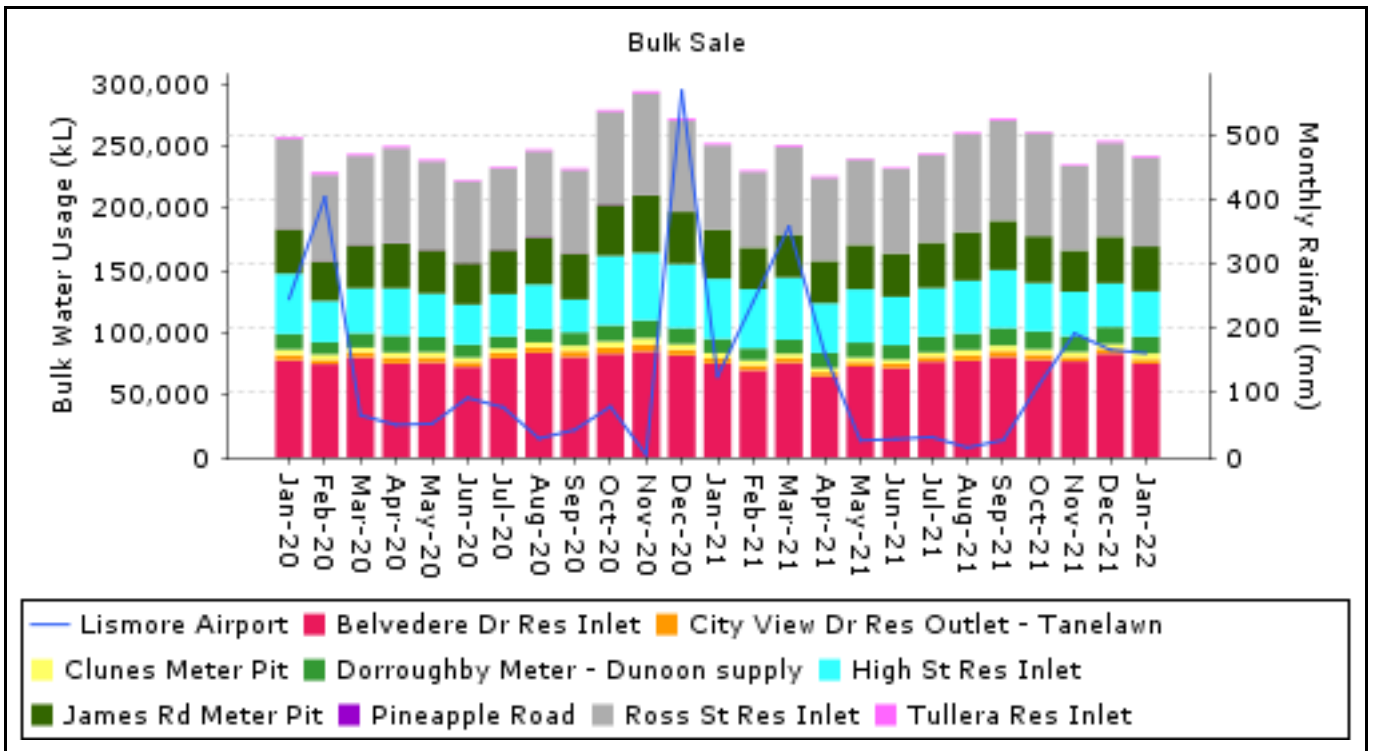


Figure 14: Monthly consumption and rainfall - Lismore City Council

Figure 15 shows monthly consumption for water fill stations for Lismore City Council and the rainfall for the previous two years.

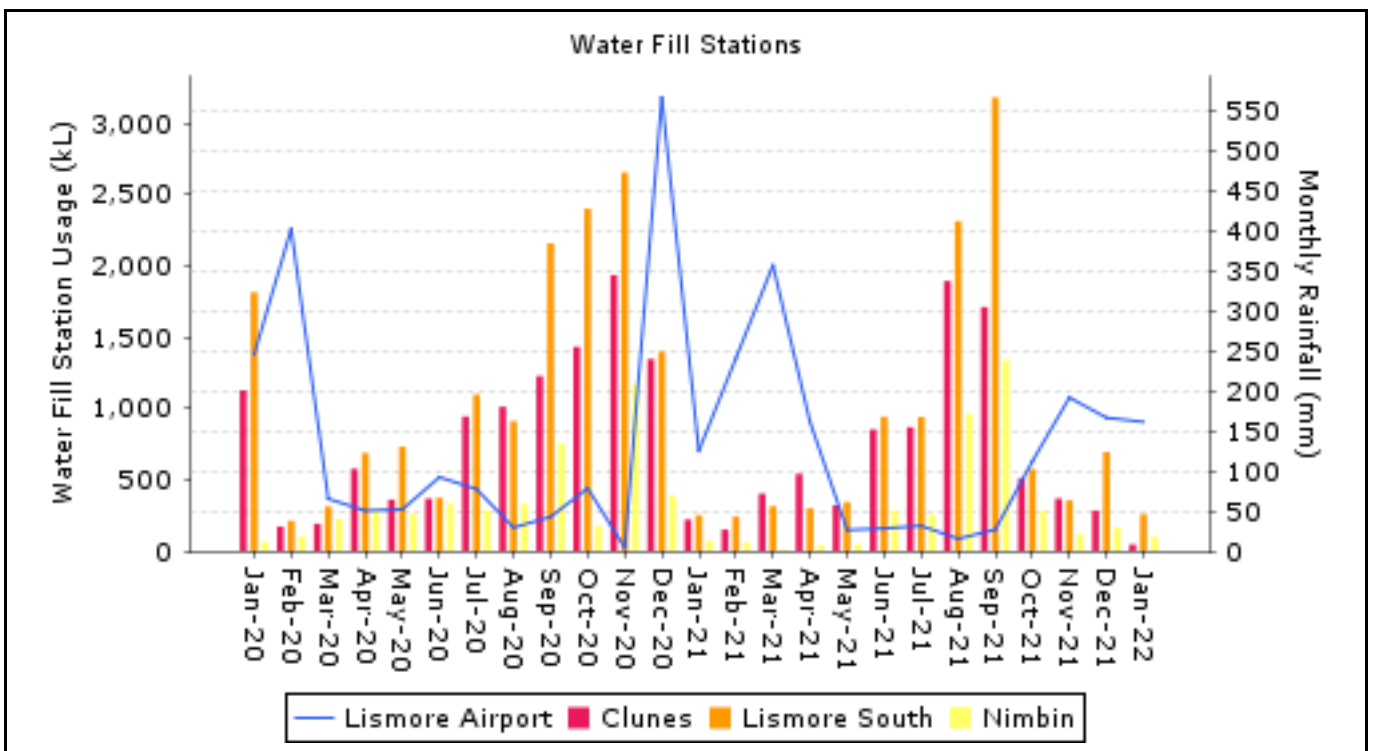


Figure 15: Monthly consumption commercial water fill station and rainfall

Figure 16 shows total usage of individual commercial water fill stations for the financial year to date compared with the previous two years.

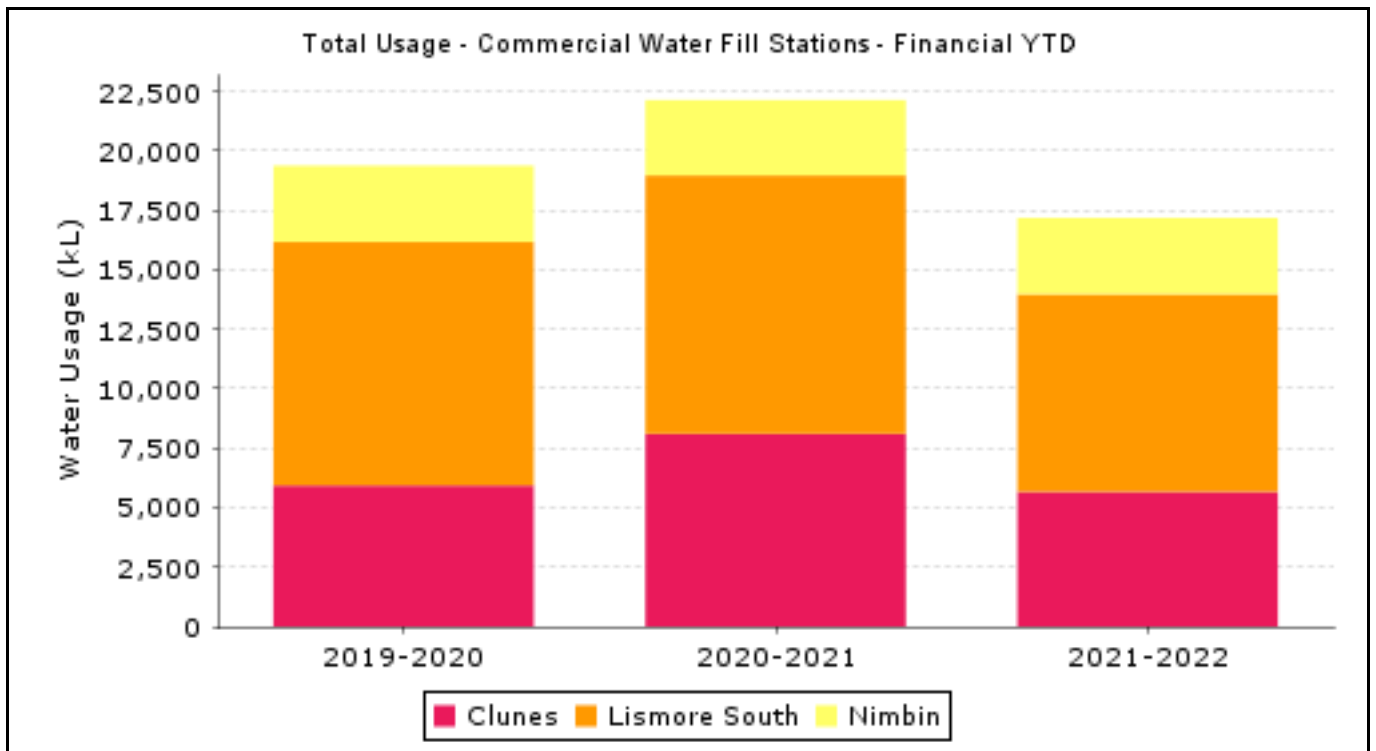


Figure 16: Total usage of commercial water fill stations - 1 July to 31 January

Monthly consumption by Richmond Valley Council

Figure 17 shows monthly consumption for Richmond Valley Council area for the previous two years. Rainfall data is from the Bureau of Meteorology rainfall station Evans Head.

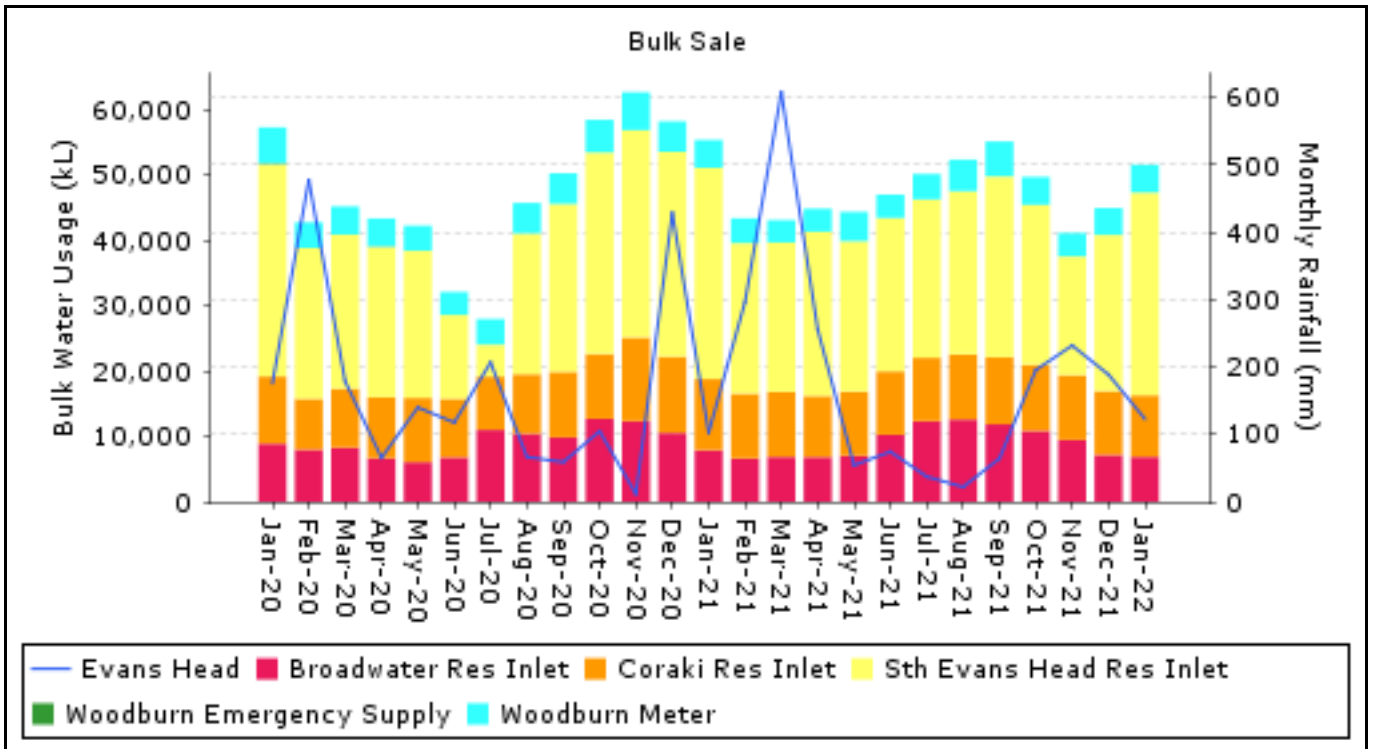


Figure 17: Monthly consumption and rainfall - Richmond Valley Council

Figure 18 shows monthly consumption for water fill stations for Richmond Valley Council and the rainfall for the previous two years.

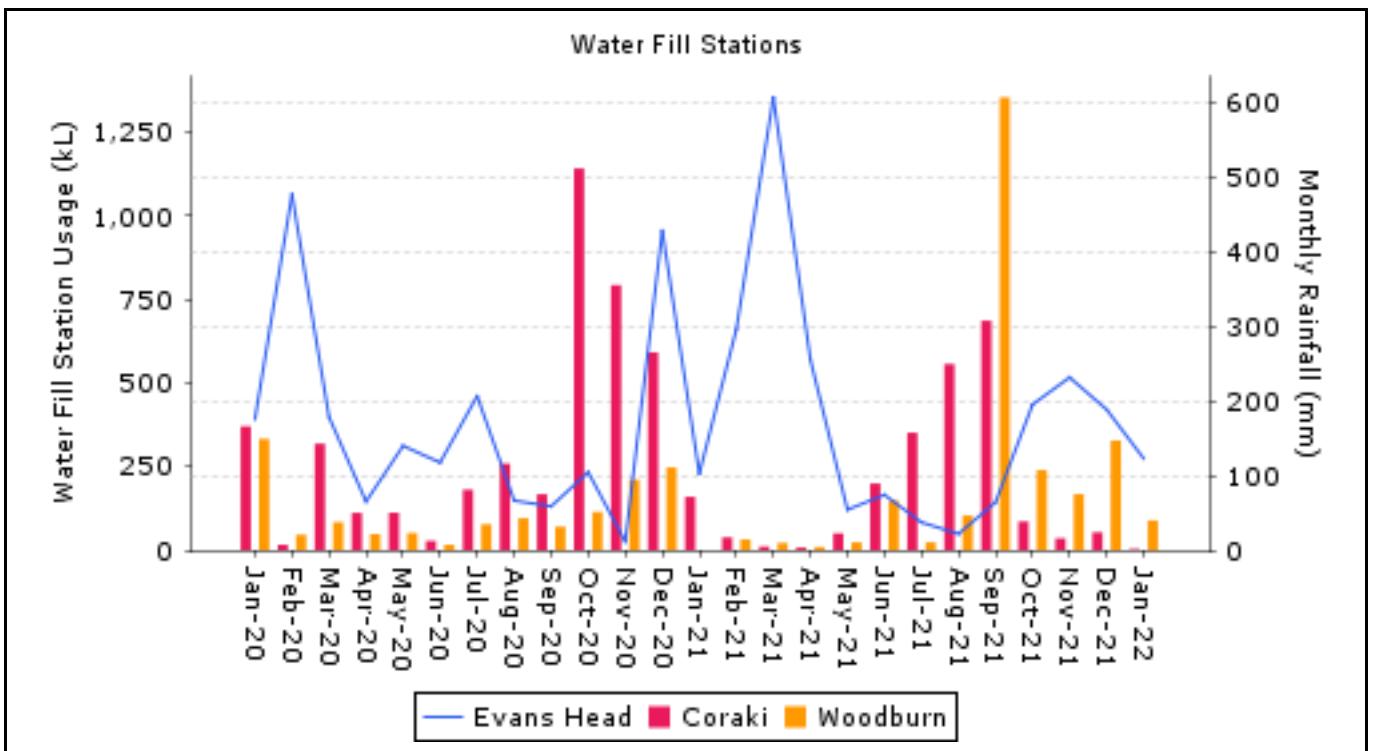


Figure 18: Monthly consumption commercial water fill station and rainfall

Figure 19 shows total usage of individual commercial water fill stations for the financial year to date compared with the previous two years.

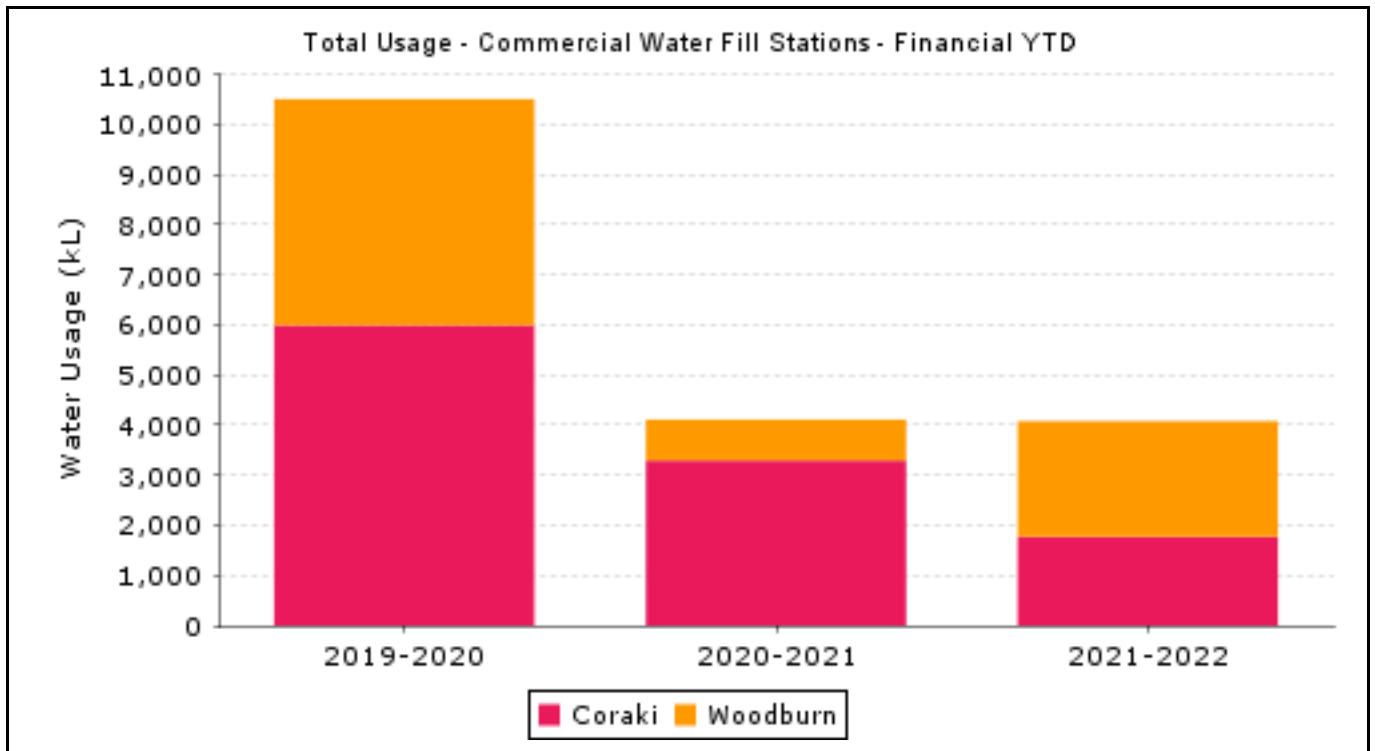


Figure 19: Total usage of commercial water fill stations - 1 July to 31 January

Reports / actions pending

Responsible Officer: General Manager (Phillip Rudd)

Recommendation

That the report be received and noted.

Background

Following is a list of pending resolutions with individual comments provided on current position and expected completion date.

Meeting	Resolution	Status
20/02/19	Confidential report: Development Servicing Plan for Bulk Water Supply 2016 – request for deferred payment arrangement	
	<p>RESOLVED [13/19] (Mustow/Cadwallader) that Council:</p> <ol style="list-style-type: none"> 1. Receive and note this report. 2. Approve the request for deferred payment arrangements as set out in the report. 3. Receive a subsequent report on policy options for deferred payment arrangements having regard to the Development Servicing Plan for Bulk Water Supply and the policy positions of constituent councils. 4. Reject any further consideration of similar requests until point 3. is complete and a policy position is determined. 	<p>Scheduled for review before the expiry of the current Development Servicing Plan in 2021.</p> <p>UPDATE: The scope of work for the development of the new Development Servicing Plan is complete and quotes are being called for the new Plan.</p>
11/12/19	Information reports	
	<p>Perradenya cycleway: A future report be provided to Council.</p>	<p>IN PROGRESS: Workshop presented at September 2020 workshop. Report to Council scheduled for April 2021.</p> <p>DEFERRED: Deferred to new term of Council subject to adoption of the FWP2060 and incorporation into the Long-Term Financial Plan. Target December 2021 – June 2022.</p> <p>UPDATE: February 2022 – June 2022.</p>
	<p>Richmond River Cane Growers' Association submission: <i>Review of Tuckombil Canal fixed weir.</i> (Letters 118585 / 53238)</p>	<p>IN PROGRESS: Staff engaged with RVC staff around their grant application for a Study to update their Richmond River Flood Model (2010). Their grant was successful, and they have commenced procurement of a modelling consultant. Rous has contributed \$10,000 towards the project. One secondary goal for their Study is to consolidate these models along the mid to lower Richmond, including the Evans River Model, the W2B Pacific Highway Upgrades and collect high resolution flood modelling information around the Tuckombil Canal/ upstream.</p>

Meeting	Resolution	Status
		<p>The updated model information will contribute to a future Rous-led options study for the Tuckombil Canal. The Cane Growers' Association was advised in April 2020 of the intentions with regards to Richmond Valley Council, and will be updated during December 2020 with the latest information.</p> <p><u>UPDATE:</u> The work by Richmond Valley Council to update their flood model is progressing well, with modelling expected to be completed within the first quarter of the 21/22 FY. RCC's requirements for the flood modelling around the Tuckombil Canal are expected to be met and reported back during the same period.</p> <p><u>UPDATE:</u> Council staff received an update on the project from the consultants in early September 2021. The model development is nearing its conclusion and work will commence on modelling scenarios soon.</p> <p><u>UPDATE:</u> Richmond Valley Council (RVC) staff have advised that the consultants have finalised the flood model and are now in the reporting phase. A draft Study report will go to RVC in the first quarter of 2022.</p> <p>When the flood model is finalised, Rous will be able to consider the results and how a review of the Tuckombil Canal fixed weir would be financed.</p>
20/06/21	Rous Cultural, Environmental and Information Centre	
	<p>RESOLVED [28/21] (Cadwallader/Mustow) that Council:</p> <ol style="list-style-type: none"> 1. Receive and note the report. 2. Endorse the approach to lease the Lismore Visitor Information Centre site, establish and operate a cultural, environmental and information facility as per the Legal Framework set out in the report. 3. Approve an additional budget allocation of \$175,000 from bulk water reserves. 4. Receive a progress report bi-annually (every six months). 5. Further negotiations take place with Lismore City Council (LCC) regarding LCC providing tourism services fulltime including Monday-Friday. 6. Incorporate a history of the community and service club involvement in the development of the Lismore Visitor Information Centre, within the cultural and community displays. 	<p>Progress report to be submitted to Council's April 2022 meeting.</p>

Confidential matters

Responsible Officer: General Manager (Phillip Rudd)

Recommendation

That Council move into Closed Council to consider the following matters and the meeting be closed to members of the public and press based on the grounds detailed below:

Report 1	Retail water customer account assistance
Grounds for closure	Section 10A(2)(b) the personal hardship of any resident or ratepayer.
Report 2	Duck Creek weir
Grounds for closure	Section 10A(2)(d) commercial information of a confidential nature that would, if disclosed: (i) prejudice the commercial position of the person who supplied it.

Section 10A, Local Government Act, 1993:

A Council may close to the public only so much of its meeting as comprises the receipt or discussion of any of the following:

Section 10A(2):

- (a). personnel matters concerning particular individuals (other than councillors),
- (b). the personal hardship of any resident or ratepayer,
- (c). information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business,
- (d). commercial information of a confidential nature that would, if disclosed:
 - (i). prejudice the commercial position of the person who supplied it, or
 - (ii). confer a commercial advantage on a competitor of the Council, or
 - (iii). reveal a trade secret,
- (e). information that would, if disclosed, prejudice the maintenance of law,
- (f). matters affecting the security of the council, councillors, council staff or council property,
- (g). advice concerning litigation, or advice that would otherwise be privileged from production in legal proceedings on the ground of legal professional privilege,
- (h). information concerning the nature and location of a place or an item of Aboriginal significance on community land.
- (i). alleged contraventions of any code of conduct requirements applicable under section 440.

Section 10A(4):

A council, or a committee of a council, may allow members of the public to make representations to or at a meeting, before any part of the meeting is closed to the public, as to whether that part of the meeting should be closed.

Document is Restricted

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Notice of Motion

Council Meeting 16 February 2022

Subject: Dunoon Dam

I hereby move:

That Council:

1. Adopt Revision 7 of the Integrated Water Cycle Management (IWCM) Strategy (Attachment 1) and update Revision 7 of the IWCM to reflect the inclusion of Dunoon dam investigations as part of the Future Water Project 2060
2. Approve the completion of detailed cultural heritage and biodiversity assessments associated with the proposed Dunoon dam in consultation with relevant Traditional Custodians.
3. Defer implementing the resolution associated with the proposed Dunoon dam, resolved by Council at its meeting of 16 December 2020 (resolution [61/20] Item 2), until after Stage 3 options have been determined (Attachment 2)
4. Utilise existing budget allocations for Dunoon dam land management to progress the actions in Item 2.

Signed: Councillor Big Rob

Date: 19 January 2022

Staff comment

1. Revision 6 of the IWCM was attached to the agenda for the 21/07/2021 Extraordinary Council meeting and was updated after that meeting to Revision 7, which is the version on Council's website. Changes made from Revision 6 to 7 include:
 - a. Updated to reflect the outcomes of consultation in the second public exhibition period.
 - b. Dunoon Dam land disposal was removed from work plans and budgets (disposal of Dunoon Dam land had previously been included based on prior Council decisions).
 - c. Other minor changes.
2. Completion of detailed cultural heritage and biodiversity assessments for the proposed Dunoon Dam site are expected to take a number of years to complete. Work to develop the Scope of Work for these assessments can commence this FY in consultation with stakeholders, including Traditional Custodians of the land.

3. Since the Council resolution [61/20] of December 2020, physical work on the proposed Dunoon Dam site has been limited to management of the buildings, fences, and weeds on the sites. In addition, information to support the registration of the identified sites from the 2013 report on the *Proposed Dam Preliminary Cultural Heritage Impact Assessment* by Ainsworth Heritage on the NSW Government's Aboriginal Heritage Information Management System (AHIMS) has been provided to Heritage NSW.
4. A budget of \$156,000 was allocated for the 2021/22 FY for activities associated with the Dunoon Dam. Of this budget, \$149,000 remains unspent and available to progress detailed cultural heritage and biodiversity assessments associated with the proposed Dunoon Dam. A budget of \$159,200 and \$216,400 for proposed Dunoon Dam activities is available in 2022/23 and 2023/24 respectively. Requests for additional budget allocations for the detailed cultural heritage and biodiversity assessments will be brought to Council for consideration.

Attachments:

1. Revision 7 of the Integrated Water Cycle Management (IWCM) Strategy
2. Rous County Council meeting minutes 16 December 2020 (resolution [61/20] Item 2)



Rous Regional Supply:

Future Water Project 2060

Integrated Water Cycle Management Strategy

Final

July 2021

Disclaimer:

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The Traditional Custodians of current and future water supply catchments are the Widjabal Wi-abal people of the Bundjalung nation. Hydrosphere Consulting and Rous County Council acknowledge the Widjabal Wi-abal people's deep relationship with the land and water and strongly values their traditional laws, knowledge and lessons about places and sustainability.

Rous County Council is committed to the reconciliation process. For Rous County Council, reconciliation means recognising the importance of working with the Traditional Custodians of current and future catchment and natural resource areas managed by Rous County Council.

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20-017: ROUS FUTURE WATER PROJECT 2060

REV	DESCRIPTION	AUTHORS	REVIEW	APPROVAL	DATE
0	Draft for RCC review	R. Campbell, K. Menzies	M. Howland	M. Howland	1 June 2020
1	Minor edits	R. Campbell		R. Campbell	5 June 2020
2	Public exhibition	R. Campbell		R. Campbell	9 June 2020
3	Draft following public exhibition – preferred scenario and implementation plan	R. Campbell, K. Menzies	M. Howland	M. Howland	4 Feb 2021
4	Final draft	R. Campbell, K. Menzies	M. Howland	M. Howland	25 Feb 2021
5	Minor edits	R. Campbell	M. Howland	M. Howland	1 Mar 2021
6	Revised cost estimates	R. Campbell	M. Howland	M. Howland	10 Mar 2021
7	Update following public exhibition	R. Campbell	M. Howland	M. Howland	27 July 2021

EXECUTIVE SUMMARY

Introduction

The Rous Future Water Project 2060 identifies new water supply sources to ensure long-term water supply security for the region. This project builds on extensive investigations undertaken by Rous County Council (RCC) over the last few decades to identify potential source augmentation options and enable selection of a preferred long-term strategy. This report documents the outcomes of detailed investigations undertaken regarding potential source augmentation options and implementation scenarios. The scenarios have been compared using a multi-criteria analysis (MCA) considering environmental, social and financial outcomes. Following consultation on the potential options and scenarios in 2020 and 2021, and resolutions of Rous County Council [61/20 and 38/21], the Future Water Project 2060 has been developed to include a diversified portfolio of actions to meet the region's water security needs.

The dry year demand for water at 2060 is predicted to be between 16,000 ML/a and 16,700 ML/a, an increase of approximately 5,000 ML/a over current (2020) dry year demand. The water supply demand has been compared to the secure yield of the system (13,350 ML/a) which has shown that a new water source will be required from 2024. Without action, the yield deficit is predicted to be 5,619 ML/a at 2060.

A secure water supply is critical to ensure the regional community's health and quality of life as well as a sustainable environment and continued economic prosperity. RCC has a duty to ensure that there is enough water available to meet the long-term needs of the Ballina Shire, Byron Shire, Lismore City and Richmond Valley Councils and their communities.

Water Supply Options and Scenarios

A coarse screening assessment considered a range of new as well as previously identified supply options. The following options passed the coarse assessment and are discussed in detail in this report:

1. Dunoon dam (20 GL – 50 GL).
2. Connection to Marom Creek WTP (upgraded) with or without local groundwater supplies.
3. Groundwater harvesting – Woodburn, Tyagarah, Newrybar and Alstonville.
4. Desalination.
5. Indirect potable reuse (treated wastewater from constituent council wastewater treatment plants transferred to RCC surface water supplies).

Despite the risks and data gaps identified in this report, Option 1 (Dunoon dam) and Option 3 (groundwater) are considered to be feasible and are included as the primary water source in the source augmentation scenarios considered in this report. There is currently detailed information available on these options to enable a robust comparison of source augmentation scenarios. Option 2 - Connection to the Marom Creek water supply has a low initial cost with minimal planning and development required. The WTP is an existing asset and this option is considered to be worth pursuing to meet the short-term demand deficit.

Option 4 (desalination) and Option 5 (IPR) are not as attractive due to operational constraints and expected stakeholder opposition. Hence, desalination and IPR are not considered to be viable primary components of the source augmentation scenarios. However, RCC will continue to investigate these options as more data becomes available.

This report compares two potential source augmentation scenarios to provide water security to 2060:

- Scenario 1 – Groundwater (with Marom Creek). Scenario 1 includes the connection of Marom Creek WTP to the regional supply in the short term with staged implementation of groundwater schemes and treatment plants until the required supply yield is achieved.
- Scenario 2 – Dunoon dam. Scenario 2 includes the connection of Marom Creek WTP to the regional supply in the short term with construction of a new dam at Dunoon. Scenario 2A considers a 20 GL dam designed to allow for future augmentation to 50 GL (expected to be required at approximately 2080). Scenario 2B considers a 50 GL dam. Both scenarios include initial implementation of the Marom Creek and Alstonville groundwater options. The Dunoon dam scenarios include the upgrade of Nightcap WTP in 2034 from 70 ML/d to 100 ML/d.

The scenarios have been compared considering environmental, social and financial outcomes. Based on the MCA, the most favourable scenario is groundwater.

Consultation

RCC undertook two rounds of public exhibition including online surveys and written submissions to gauge feedback on the water supply scenarios. The results of the initial public exhibition phase (1 July 2020 to 9 September 2020) were reported to Council at its meeting on 16 December 2020 and it was decided not to proceed with further investigations into the Dunoon Dam [61/20]. This resulted in a revised IWCM Strategy being prepared which excluded the Dunoon dam proposal. The revised draft Future Water Project 2060 was placed on public exhibition for 8 weeks (1 April 2021 to 28 May 2021). Council then received petitions calling for the Dunoon dam proposal to be further investigated with a minority of submissions in favour of the revised draft Future Water Project 2060 including groundwater, recycled water, desalination and demand management. Council also received feedback from the Widjabul Wia-bal Native Title claim group requesting deferral of any decision in relation to the Dunoon dam proposal, including disposal of the land by Council, until additional consultation with the group is undertaken. The revised IWCM Strategy (this report) was adopted and confirmed by Council at its meeting on 21 July 2021 [38/21].

Strategy Components

In response to the community feedback and key considerations for the regional water supply, the Future Water Project 2060 will include a diversified portfolio of actions to meet the region's water security needs:

- Immediate actions: to increase the system secure yield from 2024.
- Ongoing actions: business as usual actions including reducing potable water demand, improving knowledge of future demand and secure yield and drought management planning.
- Innovative actions: to investigate the increased use of recycled water.
- Long-term actions to confirm and develop the most appropriate long-term water supply scheme components to be implemented.

The implementation of the preferred scenario for augmentation of water supply sources will be undertaken in stages which have been selected based on the benefits, costs, lead time, impact on drought contingency sources and expected success of each option in contributing to a secure water supply for the region. Stage 1 of the preferred scenario includes Marom Creek WTP treating groundwater from Alstonville in addition to existing surface water supplies from Marom Creek weir. Stage 2 of the preferred scenario will include the implementation of the Tyagarah groundwater source as a primary supply and maintaining Woodburn groundwater as a dry period supply.

Stages 1 and 2 of the Future Water Project 2060 are shown on Figure 1. The yield increase for each stage of the preferred augmentation scenario to 2040 is shown on Figure 2. The development of water sources and

treatment facilities is shown schematically on Figure 3. Source augmentation options beyond Stage 2 will require further investigation but may include additional groundwater schemes, desalination or water recycling.

The Future Water Project 2060 will also include:

- Ongoing implementation of the *Regional Demand Management Plan 2019-2022* and regular review and update of the plan.
- Water loss management focused on RCC assets.
- Smart metering focused on RCC retail customers and a regional approach where feasible.
- Ongoing review and update of drought management requirements.
- Development and implementation of a direct potable reuse pilot scheme.
- Additional investigations into the feasibility of indirect potable reuse as part of the regional water supply.
- Ongoing investigations into the preferred long-term source augmentation strategy.
- Stakeholder engagement through a number of methods.

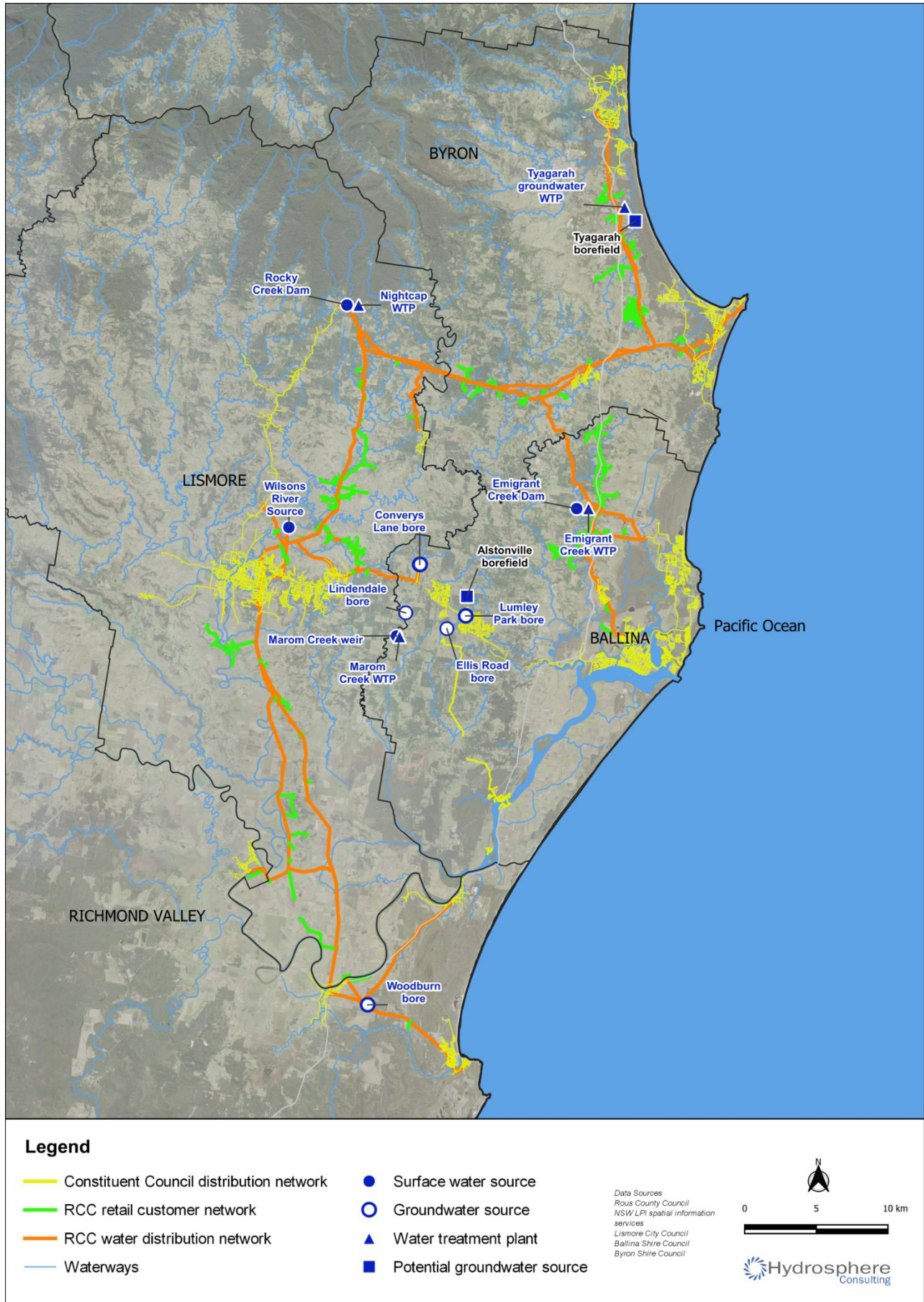


Figure 1: Preferred scenario: Marom Creek, Stage 1 and 2 groundwater

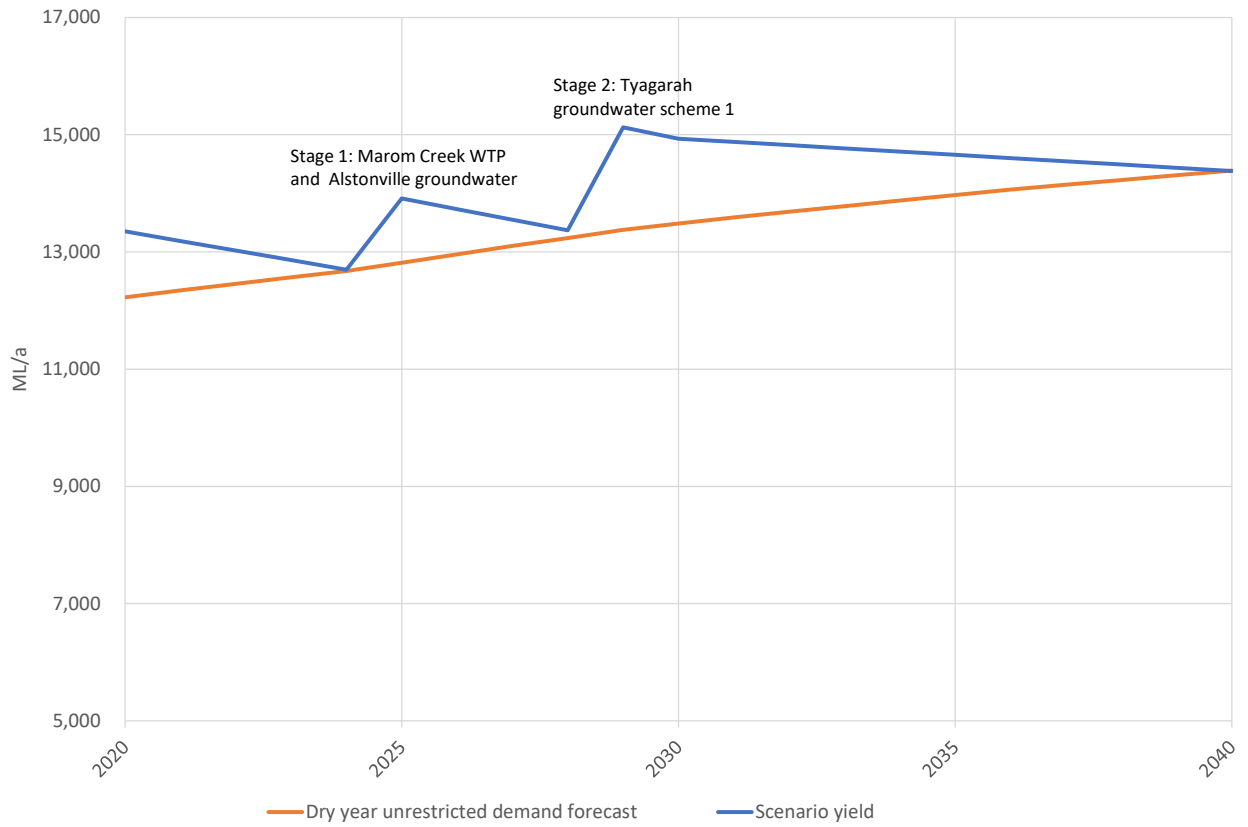


Figure 2: Preferred scenario: staging and secure yield

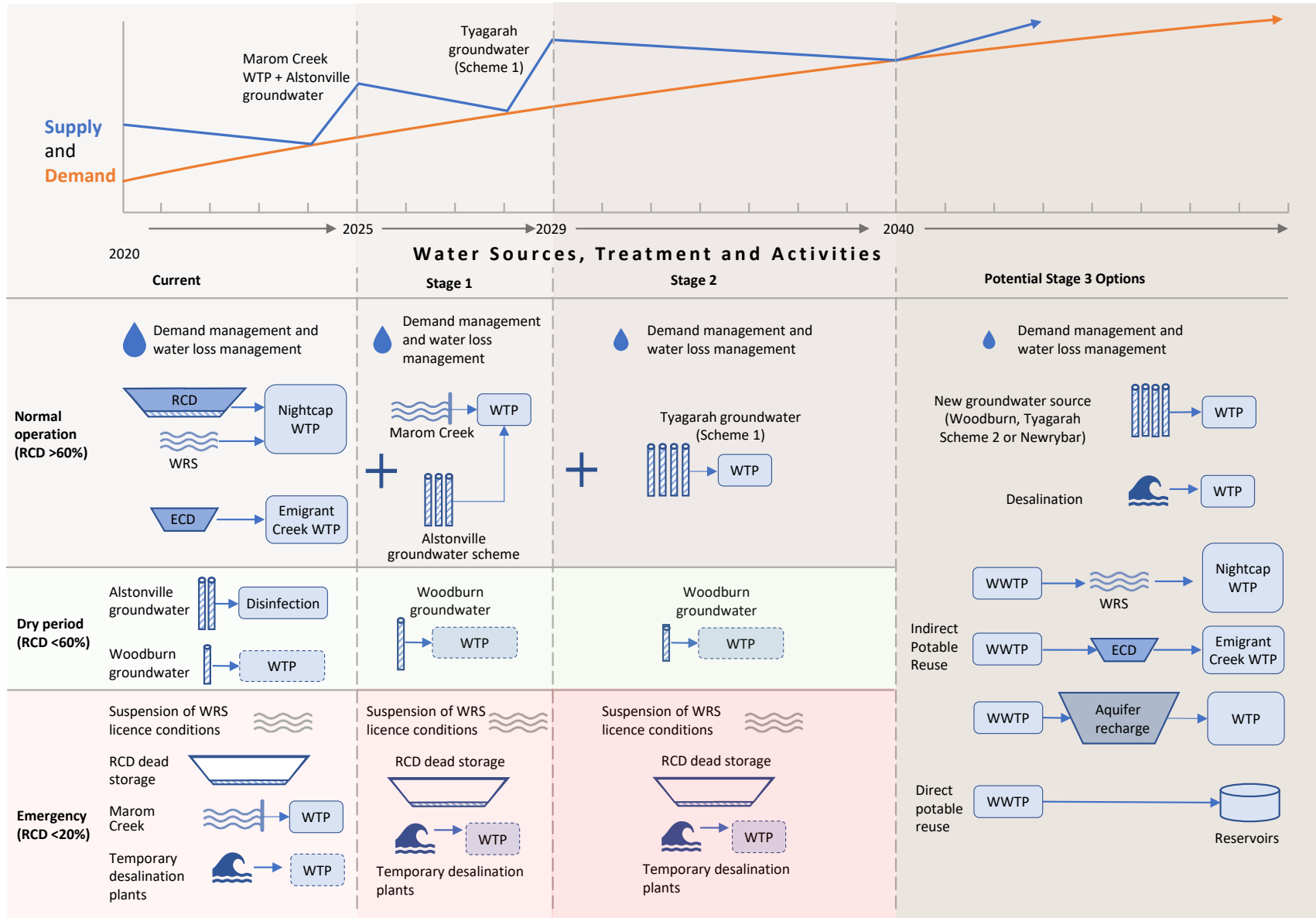


Figure 3: Staging of water source augmentation

Strategy Implementation

The delivery of the preferred scenario is shown in Table 1 and illustrated schematically on Figure 4. The delivery of the Future Water Project 2060 over the next ten years is expected to cost \$154 million. The Future Water Project 2060 will be reviewed annually and updated every four years.

Implementation risks have been identified in this report for the adopted Stage 1 and 2 water source options. RCC will continue to conduct detailed investigations for the preferred scenario and address these risks. Although definitive action is required in the short-term, adaptive management approaches have also been identified in this report. RCC will consider alternative approaches if any components of the preferred scenario become infeasible.

Table 1: Future Water Project 2060 implementation (2022 – 2031)

		Stage 1				Stage 2				Stage 3	
Delivery Program year		Year 5	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2
Stage	Task/ year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Stage 1	Marom Creek										
	Alstonville groundwater										
	Woodburn groundwater										
	New bores										
	Existing bore 3 + WTP										
Stage 2	Tyagarah groundwater										
Stage 2 & 3	Groundwater source land acquisition										
Stage 3	IPR investigations										
	Stage 3 source planning										
	DPR pilot scheme										
Ongoing	RCC Demand management planning										
Ongoing	Water loss management										
Ongoing	Smart metering										
Ongoing	Stakeholder engagement										
Ongoing	Drought management planning										
Ongoing	Demand forecasting (incl. data acquisition)										
Ongoing	Secure yield assessment										
Ongoing	IWCM Strategy review										

Source planning, design and approvals	Construction	Demand management	Strategic planning	Verification	Operation
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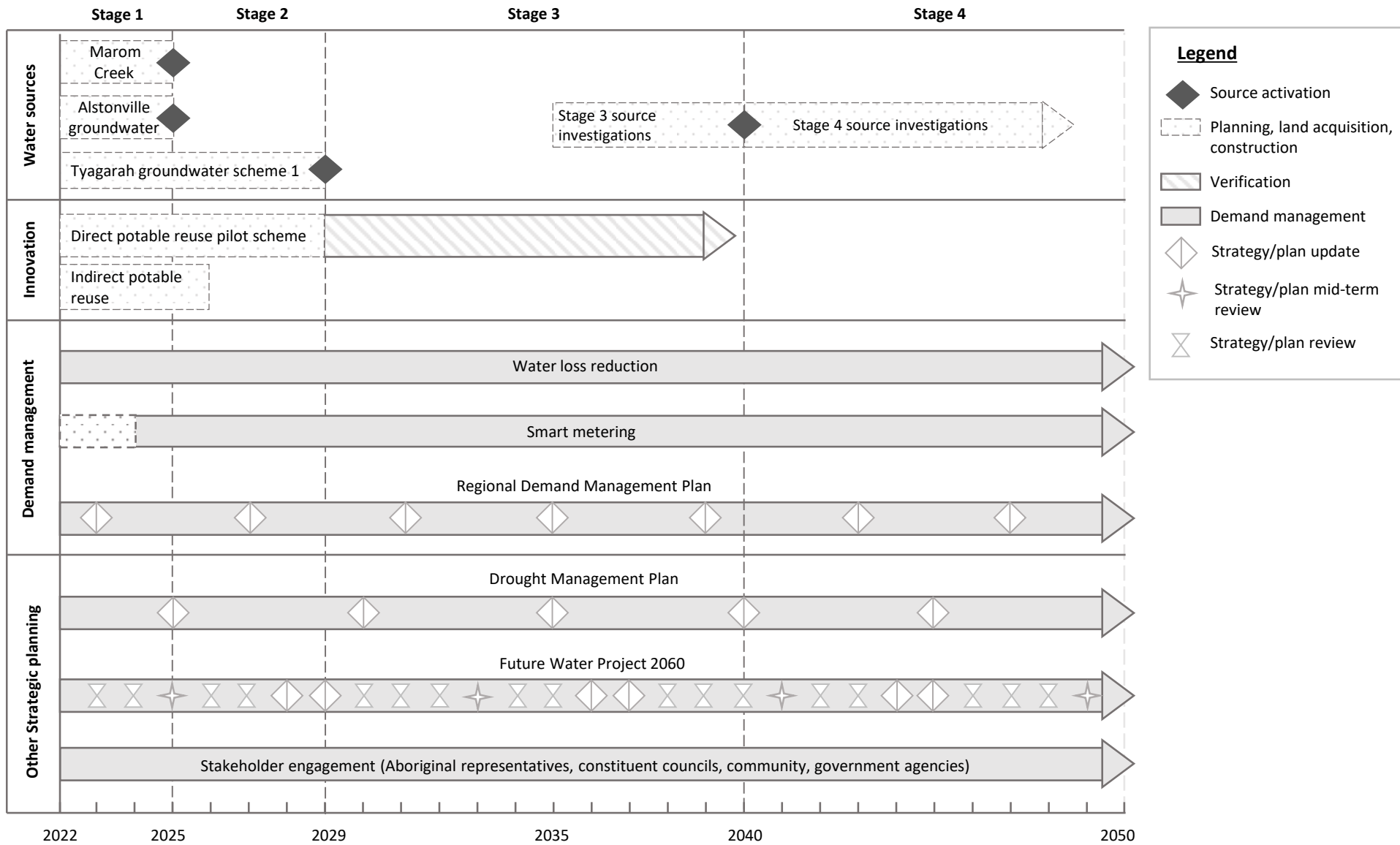


Figure 4: Future Water Project implementation planning

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1. INTRODUCTION

Rous County Council (RCC) provides bulk water to four local water utilities (LWUs) on the far north coast of NSW, servicing the urban areas of the following constituent council local government areas (LGA):

- Ballina Shire Council (BaSC), excluding Wardell and surrounds.
- Byron Shire Council (BySC), excluding Mullumbimby.
- Lismore City Council (LCC), excluding Nimbin.
- Richmond Valley Council (RVC), excluding Casino and all land west of Coraki.

RCC also provides water supply services to rural and urban connections direct from the bulk supply trunk main system (retail customers).

The Rous Future Water Project 2060 identifies new water supply sources to ensure long-term water supply security for the region. This project builds on extensive investigations undertaken by RCC over the last few decades to identify potential source augmentation options and enable selection of a preferred long-term strategy. This report documents the outcomes of detailed investigations undertaken regarding potential source augmentation options and implementation scenarios. The scenarios have been compared using a multi-criteria analysis considering environmental, social and financial outcomes. Following consultation on the potential options and scenarios, the Future Water Project 2060 has been developed to include a diversified portfolio of actions to meet the region's water security needs.

The NSW Government encourages best-practice management by water utilities throughout regional NSW, which includes Integrated Water Cycle Management (IWCM) planning. The NSW Government has supported this planning work with co-funding provided through the Safe and Secure Water Program. The development of the Future Water Project 2060 has followed the IWCM process of options and scenario development and assessment, consultation and strategy development. The Future Water Project 2060 is RCC's IWCM Strategy.

2. BACKGROUND

2.1 History of Strategy Development

In 1995 RCC adopted the following long-term water supply strategy after investigation of a range of options and consultation with stakeholders:

1. Implementation of demand management strategies to promote efficient water use among consumers (implemented through the Regional Demand Management Plan).
2. Promotion of alternative water supply initiatives, such as dual reticulation of recycled water in new urban developments (implemented through the Regional Demand Management Plan).
3. Development of the Wilsons River Source (WRS), drawing freshwater from the upper limits of the Wilsons River tidal pool, upstream of Lismore.
4. Nomination of the proposed Dunoon dam, to be developed if and when required to maintain water supply security following the implementation of the other options.

Detailed investigations into options for Dunoon dam, a concept design, environmental and cultural heritage assessments commenced in 2008 and were completed in 2013 (refer Section 8). Public consultation undertaken at the time indicated that the community's preference was for RCC to consider the future water supply issues more broadly before proceeding with Dunoon dam. As a result, RCC commenced work on the Future Water Strategy (FWS). The available information at that time indicated that existing water supplies would be sufficient to meet annual demand until 2024 and by 2060 there would be a likely secure yield shortfall of approximately 6,500 ML/a (considering climate change). The background information and the decision-making process for the development of the FWS were captured in the integrated water planning (IWP) process (MWH, 2014). The integrated planning approach involved (MWH, 2014):

- Identification of future water management issues over a long-term planning horizon.
- Development of strategy assessment triple-bottom-line objectives and criteria in response to the water management issues.
- Assessment of options and scenario development in order to address the water management issues.
- A participatory approach with stakeholder feedback.
- Recognition of future uncertainties and implementation risks, requiring ongoing monitoring and review.

The FWS was adopted in 2014 with three key actions – demand management, increased use of groundwater and potentially water re-use. Since the adoption of the FWS, RCC has undertaken extensive investigations into groundwater as an additional source. These studies included extensive reviews and consultation with stakeholders to identify appropriate groundwater investigation areas as well as conducting groundwater drilling programs (refer Section 10). These studies found that groundwater sources investigated in Newrybar (coastal sands), Woodburn (coastal sands) and Dunoon (fractured rock aquifers) will require higher cost than previously estimated, additional treatment and may not be as reliable as assumed in the FWS IWP process. In addition, the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources* excludes additional aquifer access licences in the Alstonville Basalt Plateau groundwater source as the long-term average annual extraction limit is less than existing water requirements.

2.2 Specialist Studies

As part of the Rous Future Water Project 2060, specialist studies have been undertaken to further investigate the following source augmentation options:

- Groundwater supplies.
- Indirect potable reuse.
- Desalination.
- Dunoon dam.

The findings of these studies are documented in this report. A revised demand forecast (Section 5) and assessment of secure yield of the above options (Section 6) were also undertaken.

2.3 Regional Investigations

2.3.1 Northern Rivers Regional Bulk Water Supply Study (2013)

In 2013, the Northern Rivers Regional Organisation of Councils (NOROC, now the Northern Region Joint Organisation) developed a long-term (50-year) regional water supply strategy in order to evaluate the potential benefits to future water supply security resulting from a regionally integrated system. The study (Hydrosphere Consulting, 2013b) investigated numerous interconnection and supply scenarios to identify options that warrant further investigation in future stages of the strategy development. To progress the development of a regional water supply strategy, the study recommended various investigations including:

- Regional investigations that are specific to the regional approach and would require cooperation between the Local Water Utilities (LWUs, RCC; Tweed Shire Council, TSC; Kyogle Council, KC; BaSC, BySC, LCC and RVC).
- Strategic planning including yield studies, monitoring, water loss management and demand management.

The 2013 study found that major additional water supplies will be required to meet the growth in demand within the RCC bulk supply area and the TSC Bray Park system and actions to address the yield deficit in these systems have not yet been finalised. TSC is pursuing investigations relating to the raising of Clarrie Hall Dam and the drought security connection to South-east Queensland (SEQ) water link. RCC's priority from the FWS was the investigation of groundwater supplies and more recently, the potential for indirect potable reuse or the Marom Creek (Wardell) water supply to partially meet water supply needs within the bulk supply area (refer Section 9).

The 2013 study concluded that a regional approach may provide improved financial outcomes through economies of scale as well as access to a wider range of options to improve efficiency, system resilience and operational flexibility. The interconnection of RCC and TSC systems is considered to be a major component of a true regional approach. The potential non-regional supply options (raising Clarrie Hall Dam, SEQ link and groundwater supplies) have not yet been developed to a point where the future TSC and RCC supplies can be considered secure. TSC has confirmed that its current priority is the investigations for the raising of Clarrie Hall Dam and an emergency connection to SEQ water grid, with the resulting augmented supply expected to be sufficient to 2046. A review of the action plan (Hydrosphere Consulting, 2018a) found that the recommendations of the 2013 study in relation to interconnection of the RCC and TSC systems were still considered to be appropriate, even if they are not implemented in the short-medium term.

2.3.2 Toonumbar Dam

Local councils have been in discussions with Water NSW during 2019 about the potential to access additional releases from Toonumbar Dam. Utilisation of water from Toonumbar Dam is generally low as existing licence holders do not fully exhaust their entitlements as unregulated surface water and groundwater sources are also available and these are preferred by the major water users due to lower water usage charges. Licence holders use from 55 to 950 ML/a from Toonumbar Dam (Hydrosphere Consulting, 2020b). Anecdotal evidence suggests that surface water licences are currently used as a drought security measure. During summer 2019/20, the level in Toonumbar Dam was very low which is attributed to increased use of Toonumbar Dam licences and low inflows.

Toonumbar Dam has 3,000 ML/a of available general security supply which is predicted to be equivalent to 1,250 ML/a of high security town supply (Hydrosphere Consulting, 2020b). However, it is not possible to convert existing water entitlements to town water supply licences under the existing Water Sharing Plan for the Richmond River. The Water Sharing Plan is due for review and update by June 2022.

WaterNSW is currently undertaking modelling to confirm the available capacity for allocation of additional extraction licences as part of the 20-year infrastructure options study and the NSW Government may consider options involving increased use of Toonumbar Dam for town water supply as part of that study. Options involving raising of Toonumbar Dam and increased access to water for town water supply needs are potentially viable source augmentation options for the RCC regional supply although there is insufficient information available at present to pursue these options (refer Section 7).

2.3.3 Far North Coast Regional Water Strategy

A long-term Regional Water Strategy is being developed to guide how the NSW Government can best manage the challenges that are facing the Far North Coast region. The Department of Planning, Industry and Environment (DPIE) is identifying actions that can address these challenges to support a liveable and prosperous Far North Coast region. The draft strategy (NSW Government, 2020) presents a long list of potential options to maintain and diversify water supplies, protect and enhance natural systems, support water use and deliver efficiency and conservation, strengthen community preparedness for climate extremes and improve the recognition of Aboriginal people's water rights, interests and access to water. The list of options draws on previous studies (including the *Northern Rivers Regional Bulk Water Supply Study* and investigations undertaken by RCC) and consultation activities and includes the options considered by RCC to augment the regional town water supply as part of the FWS and Future Water Project 2060. Following public exhibition of the draft strategy in late 2020, the Department of Planning, Industry and Environment (DPIE) will screen and assess the feasibility of each option and develop a final strategy.

3. EXISTING REGIONAL WATER SUPPLY

The RCC bulk and retail water supply transfer network is shown on Figure 5. The supply network extends from Ocean Shores in the north and Byron Bay in the east, west to Lismore and south to Evans Head. Surface waters are the primary water resource utilised by RCC although there are also some groundwater sources available for use during dry periods (Table 2). The principal component of the RCC bulk supply is Rocky Creek Dam (RCD) situated 25 km north of Lismore near the village of Dunoon. Water from RCD is treated at the Nightcap Water Treatment Plant (WTP) and is distributed through three trunk mains owned and operated by RCC. One trunk main supplies treated water to Lismore and to the Richmond Valley area. The other two mains supply Byron Bay and Ballina Shires. Water from the WRS upstream of Lismore is pumped directly from the Wilsons River to the Nightcap WTP for filtration and distribution to consumers. Water from Emigrant Creek Dam (ECD) is treated at the Emigrant Creek WTP and is distributed to supplement supplies to Ballina and Lennox Head.

Table 2: RCC water sources

Details	Rocky Creek Dam	Emigrant Creek Dam	Wilsons River Source	Converys Lane bore	Lumley Park bore	Woodburn bores ¹
Water Source ²	Terania Creek	Alstonville Area	Wyrallah Area (Wilsons River)	Bangalow Groundwater	Alstonville Groundwater	Richmond Coastal Sands
Source Type	Large in-stream storage	Large in-stream storage	Run-of-river abstraction	Groundwater extraction	Groundwater extraction	Groundwater extraction
Storage capacity	14,000 ML	820 ML	-	-	-	-
Area served	Lismore City, Richmond Valley, Ballina and Byron Shires	Ballina and Lennox Head	Lismore City, Richmond Valley, Ballina and Byron Shires	Alstonville, Wollongbar (dry periods)	Alstonville, Wollongbar (dry periods)	Woodburn, Evans Head, Broadwater (dry periods)
Water Treatment	Nightcap WTP (68 ML/d)	Emigrant Creek WTP (7.5 ML/d)	Nightcap WTP	Chlorination	Chlorination	-
Licence entitlement	12,358 ML/a ³	2,620 ML/a ³	5,400 ML/a ³	150 ML/a ⁴	530 ML/a ⁴	242 ML/a ⁵

1. Some Woodburn bores were compromised by the construction of the Pacific Highway. Bore 3 is available as a drought source but would require a package WTP and pump to make it operational.

2. As specified in the relevant Water Sharing Plan.

3. Water Sharing Plan for the Richmond River Area Unregulated, Regulated and Alluvial Water Sources (2010).

4. Water Sharing Plan for the Alstonville Plateau Groundwater Sources (2003).

5. Not subject to a Water Sharing Plan.

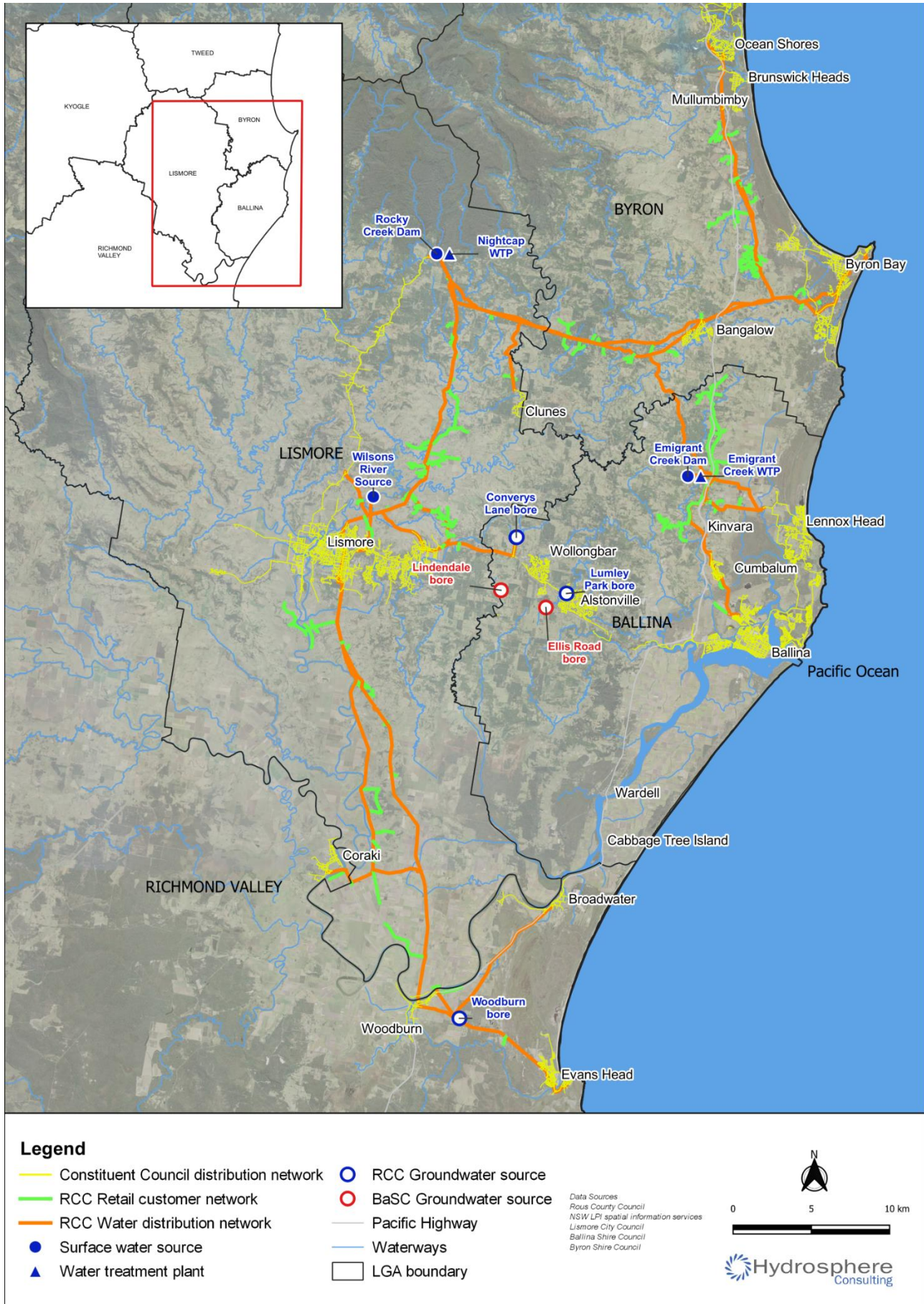


Figure 5: Regional bulk supply network

Table 3 summarises the current operating rules for the regional supply which are based on RCD storage levels. Woodburn bore 3 is not currently operational and would require a pump and package WTP installed as a temporary measure if required during dry periods. The groundwater from Lumley Park and Converys Lane bores can be disinfected and pumped into Wollongbar reservoir however additional treatment will be required to mitigate identified water quality risks. The Convery's Lane bore is at the end of its useful asset life and is planned to be replaced in the vicinity with a new and deeper bore. The Alstonville Plateau bores at Lindendale (200 ML/a allocation) and Ellis Road (350 ML/a) are owned by BaSC and have been decommissioned but may provide additional supply for 30 days with existing entitlements. The works required to recommission these bores are documented in a report to BaSC (CWT, 2018).

Table 3: Bulk water supply operating rules

RCD supply level (% of full supply volume)	Status	Source usage
100%	Normal operation	RCD only
95%		Start WRS and ECD
60%	Dry period operation	Start Woodburn bore 3, Lumley Park and Converys Lane bores
30%		Start BaSC's plateau bores (Lindendale and Ellis Road)
20%	Emergency operation	Start emergency supply source
15%		
10%		

Extreme drought conditions are rare, but history has shown that circumstances can change quickly and rainfall can vary substantially. The most severe drought occurred from mid-2002 to May 2003, where storage levels dropped to 25% in RCD and restrictions were ramped up to Level 5 over a number of months.

Restrictions were in place for a total of 206 days (approximately 10 months). A drought also occurred in 2007 when storage level dropped below 60% and Level 1 restrictions were introduced for 156 days. During the 2019/20 drought, the RCD level fell to a minimum of 61% of full supply volume in mid-January 2020 and RCC introduced Level 1 restrictions due to the low inflows into RCD and to reflect the restrictions imposed in other parts of the region.

In the past, restrictions have been effective in slowing the rate at which water storage levels drop, allowing more time to implement alternative supply options as required. The *Regional Water Supply Drought Management Plan* (Hydrosphere Consulting, 2016) was adopted in 2016 to provide a regional restriction regime that applies to all customers served by the RCC regional water supply. Water restrictions are applied if storage levels in RCD fall to reduce demand and prolong the supply.

The drought restriction regime consists of four colour-coded restriction commencing when RCD reaches 60% (dry period operation) as shown in Table 4. Each restriction level has an associated target demand and water saving measures for residential and non-residential potable water use.

Table 4: Regional water restriction levels and target reduction in demand

Restrictions	Everyday water saving measures	Level 1: Moderate	Level 2: High	Level 3: Very High	Level 4: Severe	Emergency
Trigger to introduce restrictions	-	RCD = 60%	RCD = 45%	RCD = 30%	RCD = 20%	RCD = 10%
Target reduction in demand	0%	5%	15%	25%	35%	45%

Leading up to the introduction of restrictions and during their implementation, restrictions will be actively supported by an Operational Readiness Plan which includes:

- Routine actions – undertaken on a regular basis depending on the restriction level including:
 - Assessing the risk of future water restrictions.
 - Ensuring preparation and approval of communication tools.
 - Considering any required changes to water supply management.
- Drought actions – undertaken when water restrictions are introduced.

During drought conditions, the existing water sources will diminish according to the net demand at a particular restriction level. As a drought progresses, it may be necessary to consider potential alternative supplies to supplement existing sources. If level 4 restrictions are implemented, RCC will prepare for activation of an emergency source which would be activated at level 5 (emergency). RCC has a number of water source options that can be implemented with relatively short lead times to slow the rate at which RCD levels drop and allow more time to implement alternative supply options if required. Once RCD levels reach 20%, emergency supply options may be required if drought conditions continue. Potential emergency supply options include:

- Increased extraction from the WRS outside of the current licence. It is expected that there is about 17,000 ML of water contained in the tidal pool, which could be pumped to Nightcap WTP using the existing infrastructure if the licence conditions were temporarily suspended (Hydrosphere Consulting, 2016). This could meet demand for an additional 920 days (2.5 years) at emergency level restricted (target) demand. One key risk factor of this option is that during drought conditions the salt water/fresh water interface moves upstream in the Wilsons River, which could compromise fresh water supply. Experience in the 2002/03 drought showed that this movement occurred slowly and did not compromise this emergency source. Prolonged drought and use of the source may result in the interface moving to the intake point.
- Increased extraction from Marom Creek weir with treated water from Marom Creek WTP delivered to Wollongbar reservoir for supply to a defined area of Wollongbar/Alstonville. This is also considered as a primary source augmentation option (refer Section 9).
- Temporary desalination plants. Use of portable desalination units is one way of diversifying supply sources and reducing the risk of running out of water in an extreme drought. The units would be removed when no longer required. Desalination options are discussed further in Section 11.

Each option also requires individual lead-in times and activation tasks (Table 5). There is the potential to install additional groundwater bores as emergency sources (refer Section 10) but there is expected to be a significant lead time to construct and commission new bores.

Table 5: Activation requirements for potential emergency sources

Potential emergency source	Activation requirements	Timing
WRS increased extraction	<ul style="list-style-type: none"> Seek approval from Natural Resources Access Regulator (NRAR) to operate outside normal licensing rules. 	Unknown
Marom Creek weir	<ul style="list-style-type: none"> Seek approval from NRAR to operate outside normal licensing rules. Preliminary investigations have been undertaken (refer Section 9). 	2 weeks
Temporary desalination plants	<ul style="list-style-type: none"> Confirm location and availability of plant. Preliminary investigations have been undertaken (refer Section 10.10). 	3 months

Source: Hydrosphere Consulting (2016)

While these options provide a necessary safeguard in the event of a drought emergency, they do not provide a viable solution for securing Council's bulk water supply over the long term.

4. DEMAND MANAGEMENT

Demand management led by RCC has been an integral part of planning and management of water supply assets and ongoing supply management in the region since 1995 and these initiatives have been successful in reducing water demand. The demand per connection has decreased with these water conservation measures as well as pay-for-use pricing and water restrictions. In recent times, the rate of reduction in per connection consumption has reduced as the level of water conservation in the community already achieved means that there is less opportunity for further reduction in consumption. Although further reduction in per connection demand is likely to be more difficult to achieve in the future, RCC and its constituent councils are committed to responsible water use and ongoing reduction in demand.

The *Regional Demand Management Plan 2019 – 2022* (RDMP, Hydrosphere Consulting, 2018b) describes the water supply demand management initiatives to be implemented by RCC and its constituent councils over the four-year period. Enhanced demand management initiatives presented in the FWS were reviewed during the development of the RDMP to build on the successes of previous demand management initiatives and continue to deliver comprehensive and effective water conservation programs throughout the region (Table 6).

Table 6: Demand management strategies considered in the RDMP 2019 - 2022

Demand management strategy	Comments	Adopted strategies for RDMP 2019 – 2022
<i>Residential initiatives</i>		
Rebates – rainwater tanks	Not considered cost effective in the FWS but the program has broad community support.	The rainwater tank rebate program will continue in current form with active promotion.
Rebates – recycled water	Program has been reviewed with consideration of recycled water scheme development.	Enhanced promotion of rebates where recycled water is available.
Rebates – showerheads	Rebates have been offered since 1996. Water efficient showerheads are now readily available and the opportunity to replace inefficient showerheads is reduced.	No additional action required in this RDMP.
Water Efficiency Labelling Scheme (WELS), Building Sustainability Index (BASIX)	Programs are mandated by the NSW Government.	No additional action required in this RDMP.
Permanent low-level restrictions	Not considered feasible with current legislation.	Increased promotion of voluntary measures (Voluntary Permanent Water Savings) is included in this RDMP.
<i>Non-residential initiatives</i>		
Enhanced Blue and Green Business Program	The effectiveness of program has been reviewed and modifications have been developed.	Sustainable Water Partner Program targeting high water users with water efficiency plans, rebates, recognition program and increased engagement.

Demand management strategy	Comments	Adopted strategies for RDMP 2019 – 2022
Open space water efficiency	June 2016 study found low level of usage and low number of customers in the region.	Not included in this RDMP.
<i>Constituent council initiatives</i>		
Water loss reduction	Strategic and regional approach to water loss management is critical to the success of the RDMP.	The RDMP actions will improve accuracy and understanding of water loss components and target leakage reduction.
LWU (constituent council) demand management plans	Not required as each council will implement actions from this RDMP.	Not included in this RDMP.
<i>Community engagement and education</i>		
Community engagement and education - schools	Programs have been successful but need to be matched to available resources.	This RDMP includes an overarching program of education to be delivered through schools.
Community engagement and education - households	Actions are required to increase understanding of household water consumption.	Actions aim to provide increased awareness of consumption patterns and potential for water savings for all households and will also target residential customers with high consumption.
<i>Other initiatives</i>		
Smart metering	The status of current initiatives across the region and available technologies have been reviewed. Ongoing review of available technologies is required.	Smart metering program to be developed and optimised in this RDMP as this is a potentially highly effective technology to identify leaks and high consumption.

Source: Hydrosphere Consulting (2018b)

The actions adopted as part of the RDMP align with current demand management trends, community desires for water conservation and best practice management to achieve a range of demand management objectives. The RDMP actions and key performance indicators (KPIs) are summarised in Table 7.

The ongoing monitoring and evaluation of RDMP actions will continue to inform the direction for demand management in the region. The RDMP actions are designed to be flexible to adapt to changing circumstances such as demand patterns, community behaviour, technological advances and the availability of alternative water supplies as well as increased knowledge of demand management indicators and trends.

While the implementation of demand management measures has delivered significant reduction in water use, further reductions are becoming more difficult to achieve (due to demand hardening). The RDMP includes the following components to address this:

- Increased communication, promotion and customer engagement to increase uptake of the programs.
- Improved implementation and reporting processes to support the available resources for delivery of the actions.
- A stronger regional focus to achieve improved implementation and commitment to the actions.

Table 7: RDMP actions

Action	Target Groups	Objectives	Key Indicators of Success	Key Performance Indicators (KPIs)
Action 1: Monitoring, evaluation and reporting	RCC and constituent councils	<ul style="list-style-type: none"> Ensure timely, accurate and consistent reporting to assist with ongoing RDMP development and evaluation. Ensure consistency with existing reporting requirements and avoid duplication or additional reporting. Ongoing information on consumption reported to consumers. 	Ongoing reporting of action implementation and success	-
Action 2: Water loss management	RCC and constituent councils	<ul style="list-style-type: none"> Accurately quantify the amount of losses on a quarterly basis. Detect and repair leaks. Reduce losses to sustainable levels. 	Non-revenue water (NRW) - region	12% of water supplied 1,620 ML/a
			NRW - local supplies	Local targets to be developed
			Leaks repaired	90% within 4 hours of identification
Action 3: Sustainable Water Partner Program	Businesses and community groups with high consumption (>5 ML/a)	<ul style="list-style-type: none"> Assist businesses and community groups to improve water efficiency and reduce water/sewer bills. 	Water savings realised through the Sustainable Water Partner Program (SWPP)	5 ML/a from year 2 (2019/20 onwards)
Action 4: Smart metering	All customers	<ul style="list-style-type: none"> Investigate implementation of new technology for identifying leaks and monitoring customer consumption. 	Water savings realised by participants with smart meters	KPIs to be developed as part of Business Case for investment in smart metering infrastructure
			Number of new smart meters installed	
			Feedback from participants	

Action	Target Groups	Objectives	Key Indicators of Success	Key Performance Indicators (KPIs)
Action 5: Recycled water	All customers within dual reticulation service areas	<ul style="list-style-type: none"> Develop cost-effective opportunities for replacement of potable water use with treated sewage effluent. Encourage the use of recycled water to supplement potable water supplies. 	New customers connected (apart from BASIX connections)	BaSC – 30 p.a. BySC – 5 p.a.
			Reduction in metered potable water supply	BaSC – 25% BySC – 10%
Action 6: Rainwater tank rebates	All residential customers	<ul style="list-style-type: none"> Encourage the use of rainwater to supplement potable water supplies. Increase take up of rainwater tank rebates through training and cost-effective, tailored marketing activities. 	Number of rebates provided	65 p.a.
			Reduction in metered potable water supply for participating customers	25%
			Tank suppliers and council staff trained/“accredited”	KPI to be developed as part of training program
Action 7A: Community engagement and education - households	All residential customers	<ul style="list-style-type: none"> Provide information to assist households to use water more efficiently. Improve understanding of household consumption compared to benchmarks and targets. Provide practical tools that allow consumers to take specific action relevant to their water use activities. Provide resources to deliver water efficiency messages. Improved promotion of voluntary permanent water saving measures. 	Residential demand per connection – region	165 kL/a
			Residential demand per connection – local supplies	Local targets to be developed
			Residential demand per capita – region	175 L/person/d
			Residential demand per capita – local supplies	Local targets to be developed
Action 7B: Community engagement and education - schools	Preschools, primary and secondary schools	<ul style="list-style-type: none"> Promote water efficiency messages through school education. Improved promotion of voluntary permanent water saving measures. 	-	-
Action 7C: Community engagement and education – high residential water users	Residential customers with high (>2 kL/d) consumption.	<ul style="list-style-type: none"> Implement actions to reduce consumption of high residential water users. Improved promotion of voluntary permanent water saving measures. 	Number of participants in program	50 p.a. from year 3 (2020/21)
			Water savings achieved by participants	25%

The collection of regionally consistent and meaningful data to gauge the success of the actions relies on consistent definition and monitoring of customer and demand data across the region. The RDMP also includes strategies to standardise the collection of data and the evaluation of demand across the region to increase confidence in the information that is used to inform demand management planning.

A key goal of Council's regional demand management planning has always been to defer investment in new water sources as much as possible, however demand management alone cannot address the forecast decline in the secure yield of Council's existing water supply system over the next 40 years due to changing climate conditions. Water efficiency measures must be coupled with source development. Investment in new water sources cannot be continuously deferred and eventually a new water source will be required to meet the region's long-term water needs.

RCC has adopted and has commenced implementing the actions in the RDMP. Water conservation and demand management is a long-term program and will be an integral part of the Future Water Project 2060, regardless of the source augmentation options chosen.

5. DEMAND FORECAST

RCC previously developed a long-term water supply demand forecast as part of the development of the 2014 FWS (Hydrosphere Consulting, 2013a). The demand forecast has been updated as part of the Rous Future Water Project 2060 (Hydrosphere Consulting, 2020a). The updated demand forecast incorporates information supplied by RCC and the constituent councils including:

- Customer and meter reading data since 2011.
- Bulk production and bulk supply data.
- BASIX data (number and consumption of water efficient properties e.g. with rainwater tanks).
- Recycled water (dual reticulation) programs and reduction in potable water supply demand.
- Development projections – lot yield, size, type and supply area.
- Water loss management actions and predicted efficacy.

The demand forecast includes the estimated water savings from ongoing demand management initiatives across the region and the reduction in water use from NSW Government BASIX sustainable building requirements and dual-reticulation (non-potable water) reuse schemes implemented by some of the constituent councils.

The Rous regional bulk supply currently services 41,870 connected residential properties and 5,110 connected non-residential properties (total 46,980 connections). By 2060, the Rous regional bulk supply is predicted to serve 57,560 connected residential properties (based on estimated lot yields) and 9,360 connected non-residential properties (total 66,920 connections). The Rous regional bulk supply currently produces 11,300 ML/a (five-year average). The predicted average demand per connection has been estimated for each connection type in each supply area. Dry year demand per connection has also been estimated based on climate correction of the bulk supply demand.

Future demand predictions have been developed from the growth predicted in the region (two growth scenarios for Ballina Shire and one growth scenario for other supply areas as provided by the constituent councils) and predicted water loss reduction (nil savings – using current water losses and savings predicted by the council water loss management plans) as follows:

- Demand Scenario 1A: Revised forecast dry year demand (estimated Ballina lot yield, current water losses).
- Demand Scenario 1B: Revised forecast dry year demand (upper estimated Ballina lot yield, current water losses).
- Demand Scenario 2A: Revised forecast dry year demand (estimated Ballina lot yield, reduced water losses).
- Demand Scenario 2B: Revised forecast dry year demand (upper estimated Ballina lot yield, reduced water losses).

The dry year demand for water at 2060 is predicted to be between 16,000 ML/a and 16,700 ML/a, an increase of approximately 5,000 ML/a over current dry year demand. The four demand scenarios are compared to the 2013 forecast demand in Figure 6.

The annual demand in each five-year period for each scenario (current supply area) and the local supply areas are provided in Table 8.

RCC has indicated that water loss reduction actions will be implemented, therefore Scenario 2A will be used for future water supply planning.

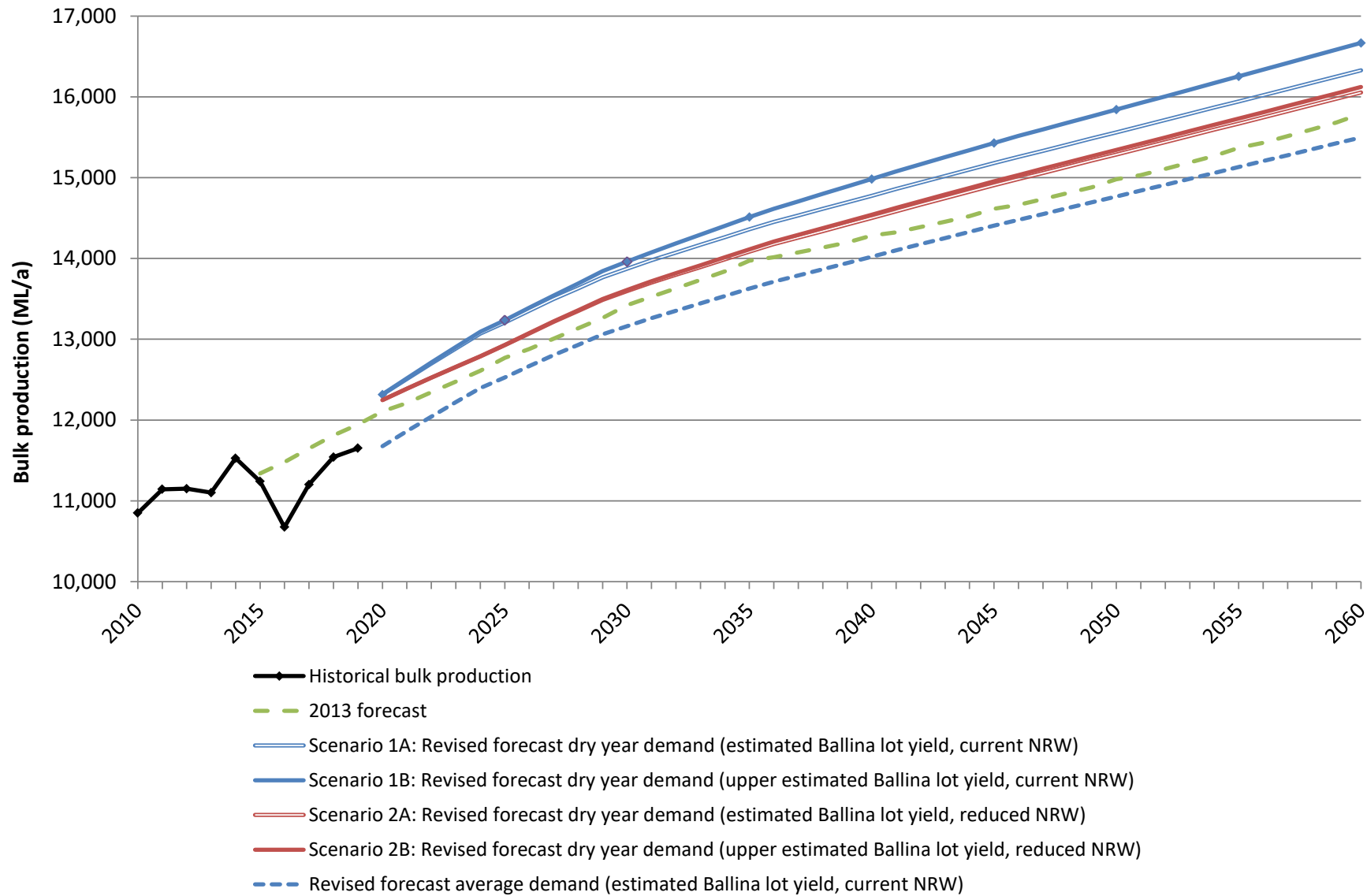


Figure 6: Forecast demand (bulk production) scenarios and comparison with the 2013 forecast – Rous bulk supply area

Table 8: Demand forecast scenarios – Rous bulk supply area (ML/a)

Scenario	2020	2025	2030	2035	2040	2045	2050	2055	2060
<i>Existing bulk supply area</i>									
Scenario 1A: Revised forecast dry year demand (estimated Ballina lot yield, current water losses)	12,315	13,208	13,872	14,359	14,775	15,179	15,560	15,943	16,328
Scenario 1B: Revised forecast dry year demand (upper estimated Ballina lot yield, current water losses)	12,319	13,233	13,956	14,510	14,979	15,426	15,840	16,250	16,664
Scenario 2A: Revised forecast dry year demand (estimated Ballina lot yield, reduced water losses)	12,225	12,814	13,483	13,972	14,388	14,793	15,175	15,557	15,942
Scenario 2B: Revised forecast dry year demand (upper estimated Ballina lot yield, reduced water losses)	12,226	12,817	13,498	14,002	14,430	14,845	15,235	15,624	16,015

6. SECURE YIELD

6.1 Secure Yield Methodology

The current NSW Security of Supply Methodology in NSW has been in use for over 25 years and modelling approaches have been developed to determine the secure yield based on this methodology. The security of supply basis has been designed to cost-effectively provide sufficient storage capacity to allow a water utility to effectively manage its water supply in future droughts of greater severity than experienced over the past 100 or more years. 'Secure yield' is defined as the highest annual water demand that can be supplied from a water supply headworks system while meeting the '5/10/10 design rule'. This rule dictates that water restrictions must not be too severe, not too frequent, nor of excessive duration, hence under the NSW Security of Supply requirement, water supply headworks systems are normally sized so that:

- a) Duration of restrictions does not exceed 5% of the time; and
- b) Frequency of restrictions does not exceed 10% of years (i.e. 1 year in 10 on average); and
- c) Severity of restrictions does not exceed 10%. Systems must be able to meet 90% of the unrestricted dry year water demand (i.e. 10% average reduction in consumption due to water restrictions) through simulation of the worst recorded drought, commencing at the time restrictions are introduced.

This enables water utilities to operate their systems without restrictions until the volume of stored water approaches the restriction volume. If at this trigger volume, the utility imposes drought water restrictions which reduce demand by an average of 10%, the system would be able to cope with a repeat of the worst recorded drought, commencing at that time, without emptying the storage. Water security is achieved if the secure yield of a water supply is at least equal to the unrestricted dry year annual demand (NSW Office of Water, 2013).

Estimating the yield of a headworks system involves two stages:

- Stream flow estimation: Developing an appropriate sequence of stream flows for the water sources.
- System behaviour modelling: Modelling the behaviour of the headworks system subject to operating constraints using the stream flows to assess what demand subject to reliability or security criteria can be satisfied.

Consideration also needs to be given to possible impacts of climate change. Draft *Guidelines on Assuring Future Urban Water Security* (NSW Office of Water, 2013) provide guidance to NSW local water utilities on assessing and adapting to the impact of variable climatic patterns on the secure yield of urban water supplies. The methodology in these guidelines enables local water utilities to estimate their future secure yield taking into account the expected impact of future climatic patterns.

Determining the impact of climate change on the secure yield of a water supply system involves two modelling steps:

- Modification of daily rainfall and evapotranspiration data and calibrated rainfall-runoff models to produce climate changed daily stream flows; and
- The daily climate changed streamflow, rainfall and evapotranspiration are input into the water supply system simulation models to determine climate changed secure yields.

The methodology has been developed from a pilot study (Samra and Cloke, 2010) which involved undertaking hydrological and system modelling to determine the impact of climate change on secure yield. The pilot study incorporates the scientific logic of the CSIRO's Murray Darling Basin Sustainable Yields

Project which used daily historical data from 1895 to 2006 and applied the relevant global climate models (GCMs) to provide projected (~2030) climate changed data for each GCM for this period.

The rainfall-runoff model is used to estimate daily stream flows for each GCM and for the historical data provided with the GCM data. The current system simulation model is used to determine the secure yield for each of the 15 GCMs, as well as for the above historical data on the basis of the 5/10/10 design rule.

Whilst the 15 GCMs represent a range of plausible climate futures for around the year 2030, there is some uncertainty which needs to be acknowledged when considering the full range of possible outcomes. The secure yield is determined for all 15 GCMs under the 5/10/10 design rule as well as the secure yield for the GCM with the lowest yield for a more severe restriction regime (10/15/25). The critical results are for:

- GCM with the median secure yield under the 5/10/10 design rule.
- GCM with the lowest secure yield under the 5/10/10 design rule.
- GCM with the lowest secure yield under the 10/15/25 design rule.

6.2 Secure Yield of Existing System

The secure yield assessment has been undertaken using the RCC Bulk Water Supply Security Model which was developed by Engeny Water Management in 2019 using GoldSim 12.1 and updated for the Future Water Project in 2020 and 2021. Data for the existing water sources used in the assessment are shown in the following table (in addition to characteristics and operating rules provided in Table 2 and Table 3).

Table 9: Existing system data used in secure yield assessment

Details	Rocky Creek Dam	Emigrant Creek Dam	Wilson's River Source	Converys Lane bore	Lumley Park bore	Woodburn bores
Dead storage	150 ML	50 ML	-	-	-	-
Leakage	1.15 ML/d	0.23 ML/d	-	-	-	-
Seepage	6.5 L/s	1.9 L/s	-	-	-	-
Environmental flow release	None	10 L/s when there is inflow	-	-	-	-
Transfer capacity	68 ML/d (950 L/s over 20 hours)	108 L/s	Based on river flow and season	0.2 ML/d	1.0 ML/d	None (not currently operational)

Source: Engeny (2021)

The secure yield of the existing system for the climate experienced over the last 120 years and with 1°C climate warming is presented in Table 10.

Table 10: Secure yield – existing system

Historic climate (5/10/10)	Reduction factor	1°C climate warming
13,350	0.88	11,720

Source: Engeny (2021)

The guidelines do not specify the year to apply the yield with the climate experienced over the last 120 years, the decline in yield to the projected 1°C climate warming and the decline in yield beyond that time. The following assumptions have been made in this report:

- The secure yield with the current climate is assumed to represent the available supply in 2020.

- The secure yield with projected 1°C climate warming is assumed to represent the available supply in 2030.
- Between 2020 and 2030, there is assumed to be a linear reduction in secure yield.
- Beyond 2030, the secure yield is assumed to reduce at a slower rate until 2060.

The dry year unrestricted demand forecast (Demand Scenario 2A: estimated Ballina lot yield, reduced water losses) is shown in Figure 7 compared to the secure yield. Figure 7 shows that the existing system yield will be sufficient to supply the dry year unrestricted demand until approximately 2024. The yield deficit at 2060 is 5,619 ML/a.

The above secure yield estimates do not consider the impact of changed environmental flow regimes as discussed in Section 6.3.

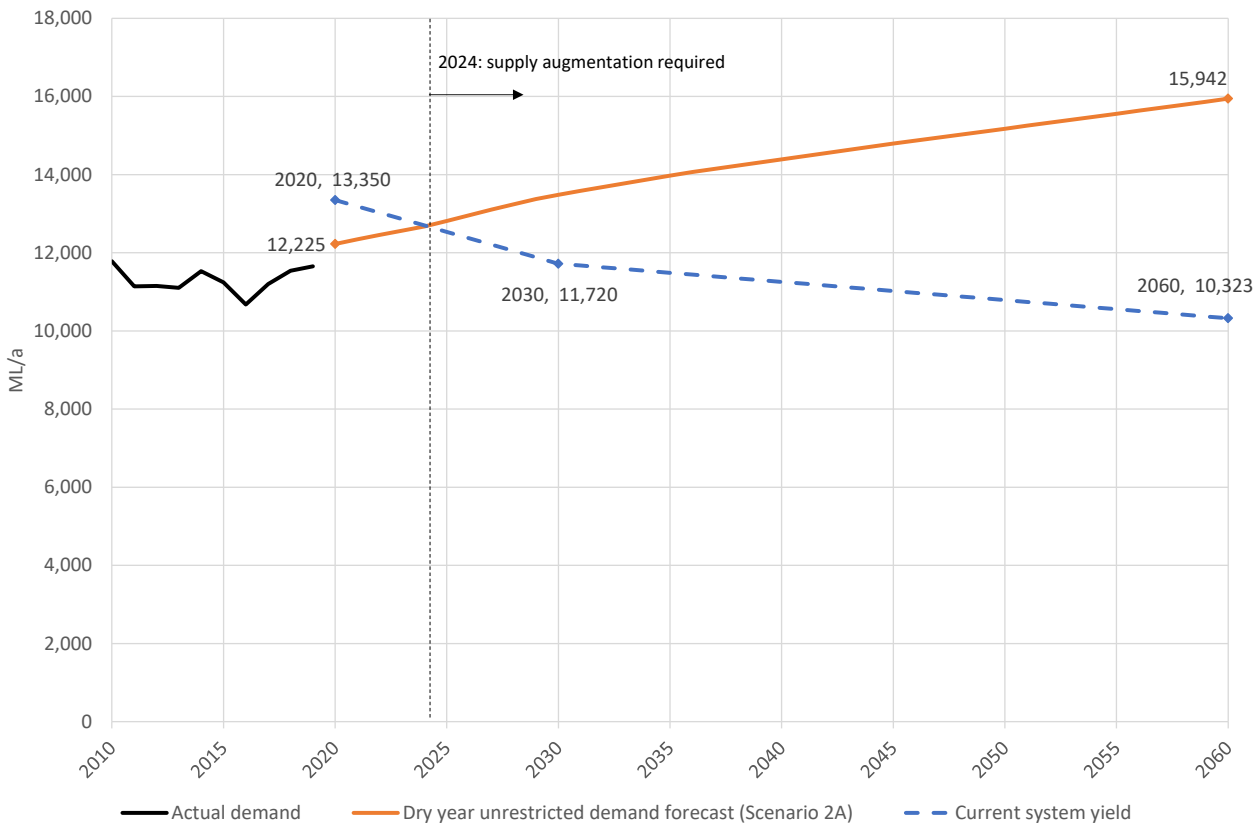


Figure 7: Comparison of existing system secure yield and demand forecast

6.3 Review of Environmental Flow Regimes

Hydrosphere Consulting (2020d) documents a review of the environmental flow regimes for each existing surface water source and the Dunoon dam option to identify any potential implications for the operation of the supply sources and hence determine the impact of changed regimes on the secure yield. The desktop review documents the likely extent of influence of current riverine extractions on downstream environments considering the influence of other catchment impacts on these reaches. Recommended environmental flow requirements were developed through critical review of available information, previous studies of downstream environments and the likely impacts of extraction assessed through analysis of modelled hydrological data and reference to other relevant literature.

Key outcomes of the review for the existing surface water sources are summarised as follows:

- Rocky Creek Dam (RCD):
 - There are no currently provisions for environmental flow releases from RCD and it is not a requirement of the current water access licence. Downstream flow in Rocky Creek below the dam occurs as a result of overflows (spilling) of the dam during high flow conditions and seepage through the dam wall (approx. 0.7 ML/d). These conditions have been in place for approximately 70 years since dam construction in the early 1950s.
 - RCD is having a large hydrological impact on all flow components in Rocky Creek, except for the highest flood flows (> 500 ML/d). Impacts are particularly pronounced during low flow periods occurring from late winter, through spring into early summer when the dam spills very infrequently. Previous assessments have identified that there are downstream ecological impacts due to RCD and associated water extraction and that these impacts are exacerbated by modified catchment conditions downstream of the dam (e.g. catchment clearing and altered land use leading to water quality decline and habitat degradation).
 - Previous assessment of pre-determined environmental flow scenarios for RCD determined that none of the scenarios were adequate to protect aquatic ecosystems, a conclusion that is supported by the 2020 review.
 - Any future environmental flow scenario for RCD would need to be formulated and justified through a robust assessment of existing environmental conditions and associated flow requirements. It is acknowledged that provision of environmental flows at RCD is likely to significantly affect secure yield of this water source and require infrastructure modifications to allow for regulation of releases and physical monitoring of dam inflows and outflows. Therefore, the environmental benefits for Rocky Creek will need to be considered holistically in comparison to the impacts of alternative source augmentation to determine an appropriate balance.
- Emigrant Creek Dam (ECD):
 - The current water access licence requires that when flow is entering ECD, the flow in the downstream watercourse should be equivalent to the flow entering the storage or sufficient to maintain visible flow at Tintenbar downstream of the dam, whichever is the lesser.
 - Environmental flow releases at ECD occur via a water outlet pipe in the base of the dam which remains open with an estimated discharge of approximately 0.8 ML/d. This is the only current provision for environmental flow during low flow (non-spilling) periods.
 - The modified hydrology as a result of ECD operations appears to be having the greatest impact on low to moderate flows in Emigrant Creek with a pronounced impact on moderate flow events which occur during late spring and early summer. During these times naturally occurring peaks in flow or 'freshes' are not passed downstream of ECD, due to dam filling after a prolonged dry period. This is expected to impact downstream water quality, overall water levels and habitat availability as well as fish passage and enhance drying of habitat and substrate. The modelling indicates that high flows and flood flows are not greatly impacted by current water supply operations and therefore impacts on channel geomorphological processes and high flow biological triggers for species are expected to be minimal in Emigrant Creek.
 - The current environmental flow regime, with a minimum estimated flow of 0.8 ML/d has been in place for many years. This flow is likely to exceed natural flows at some times of the year when there is no inflow to ECD, however given the modified nature of the catchment, it is considered that this elevated baseflow during these periods is beneficial, particularly in

relation to water quality, and it is likely that the aquatic environment now has some dependence on this minimum flow. Despite this, the current provision for base environmental flow at ECD of 0.8 ML/d is regarded as unlikely to be sufficient to fully protect downstream aquatic ecosystems and is likely to be leading to sub-optimal outcomes for the ecological functioning of the creek.

- It is acknowledged that the provision of more onerous environmental flows for ECD is likely to reduce overall water supply security and increase or bring forward the need for additional water supply sources. In this case, the environmental benefits for Emigrant Creek will need to be considered holistically in comparison to the impacts of source augmentation to determine an appropriate balance.
- Wilson River Source (WRS):
 - Environmental flow requirements for the WRS are built into the water access licence pumping rules that are based on Wilsons River flows. Abstractions from the WRS tidal pool cause changes to flow rates in the Wilsons River below the abstraction point creating a slight decrease in the rate of low to moderate flows. This causes minor upstream movements of saline water under average and low flow conditions.

7. COARSE SCREENING ASSESSMENT

The coarse screening assessment undertaken for the 2014 FWS has been updated (Hydrosphere Consulting, 2020b) as part of the Future Water Project 2060. The source augmentation options considered included all options from the 2014 FWS as well as new options identified since then. The outcomes of the coarse screening assessment are given in Table 11.

Table 11: Coarse assessment outcomes – supply options

No.	Option	Description	Conclusion	Result
<i>1 - Do nothing – status quo</i>				
1	River/creek raw water extraction (current system)	Existing RCC supply – RCD, ECD and WRS.	Existing sources will not meet future demand.	Fail
<i>2 - Existing source augmentation</i>				
2a	Raise RCD	Raising the existing dam by up to 8 metres to a height of up to 36 metres and increasing the storage capacity from 14,000 ML to 35,000 ML. Because of the need to provide environmental flows, this would only increase the yield of the dam by about 1,200 ML/a.	High capital cost and environmental impact for low future yield.	Fail
2b	Raise ECD	Raise the existing dam.	Site geology significantly limits the height to which the dam could be raised, and the relatively small catchment area results in only a very small increase in yield.	Fail
<i>3 - Toonumbar Dam</i>				
3a	Purchasing or trading existing water entitlements from Toonumbar Dam	Accessing existing low security water entitlements within the Toonumbar regulated water source. Water would be transferred to the Casino WTP for treatment to potable standards and then pumped into the RCC supply.	RCC may be able to buy existing licences, but these would not provide the level of security required.	Fail
3b		New town water supply licence within the Toonumbar regulated water source under existing Water Sharing Plan. Water would be transferred to the Casino WTP for treatment to potable standards and then pumped into the RCC supply.	Town water supply licences are not permitted under the existing Water Sharing Plan. High security water available (estimated 300 ML/a) from Toonumbar Dam is not sufficient to meet supply deficit.	Fail

No.	Option	Description	Conclusion	Result
3c	Pipeline from Toonumbar Dam or Eden Creek to Casino or RCD	Water Sharing Plan modified to allow town water supply licences.	High security water available (estimated 300 ML/a) from Toonumbar Dam is not sufficient to meet supply deficit.	Fail
3d	Raising Toonumbar Dam	10 m or 20 m raising has previously been considered. Water would be transferred to the Casino water treatment plant and then pumped into the RCC supply.	Availability of high security water is unknown.	Pass
<i>4 - Dunoon dam</i>				
4a	Staged Dunoon dam (20 GL – 50 GL)	Initial 20 GL storage on Rocky Creek with provision for future raising to 50 GL. Water would be treated at Nightcap water treatment plant.	Provides long-term yield benefit. Environmental and cultural heritage impacts will need to be assessed and potentially offset.	Pass
4b	Toonumbar Dam environmental flows to offset Dunoon dam release requirements	Operational changes may be considered by the NSW Government.	No details available. Further consideration is recommended as a complementary action with Dunoon dam.	Pass
<i>5 - Regional interconnection</i>				
5a	Connection to Tweed Shire Bray Park system and Dunoon dam	Interconnection of the Rous and Bray Park systems with source augmentation (raising Clarrie Hall Dam with Dunoon dam).	Tweed Shire Council is planning to raise Clarrie Hall Dam as a short-term augmentation option for the Bray Park water supply and therefore does not support this option. This is a long-term (>30 years) option only.	Fail
5b	Connection to Tweed Shire Bray Park system and Toonumbar Dam	Interconnection of the Rous and Bray Park systems with source augmentation (raising Clarrie Hall Dam with Toonumbar Dam).	Tweed Shire Council is planning to raise Clarrie Hall Dam as a short-term augmentation option for the Bray Park water supply and therefore does not support this option.	Fail
5c	Connection to Casino (Jabour Weir)	Interconnection of the Rous supply with the Casino water supply sourced from Jabour Weir.	Has been considered by Richmond Valley Council to augment Casino water supply but provides insufficient yield for Rous bulk supply.	Fail
5d	Connection to Marom Creek water treatment plant	Raising of Marom Creek Weir and reinstatement of aquifer supplies and upgraded WTP to supply Alstonville/Wollongbar with excess to Lismore.	Offers diversification of surface water sources for RCC with expected secure yield of approximately 800 – 1,000 ML/a (NUWS, 2018).	Pass

No.	Option	Description	Conclusion	Result
<i>6 - Groundwater</i>				
6a	Groundwater extraction	Various groundwater supplies have been considered (reinstatement of bores at Woodburn and Alstonville, new borefields at Tyagarah, Newrybar and Alstonville)	Scheme costs are likely to be higher than first thought but localised groundwater supplies can provide a diversified supply to some areas of the bulk supply network. However, the Water Sharing Plan limits new licences in some groundwater sources.	Pass
<i>7 - Stormwater</i>				
7a	Urban stormwater irrigation	Collection and storage of urban stormwater runoff, followed by treatment and irrigation of the treated water onto open space areas.	Due to climate dependence, stormwater reuse does not provide a significant yield benefit.	Fail
7b	Non-potable urban stormwater reuse (dual reticulation)	Dedicated reticulation system to supply treated stormwater for outside use and toilet flushing within new urban development areas.		Fail
7c	Indirect potable urban stormwater reuse	Stormwater collected and transferred to an existing water treatment plant (e.g. Nightcap or Emigrant Creek) for subsequent supply to consumers.		Fail
<i>8 - Desalination</i>				
8a	Desalination	Conversion of saline water to fresh water suitable for potable use. Potentially staged desalination plant capacity.	Climate resilient water source but with significant power requirements and brine management constraints to be addressed.	Pass
<i>9 – Wastewater recycling</i>				
9a	Indirect potable reuse to surface waters	Highly treated reclaimed water supply into RCD, ECD or WRS for subsequent extraction, treatment and transfer using existing infrastructure.	Climate resilient water source. Quantity of water available has not been confirmed. NSW government policy has not been developed for planned indirect potable reuse.	Pass
9b	Dual reticulation (urban)	Dedicated reticulation system to deliver treated reclaimed water for outside use and toilet flushing within new urban development areas.	Included in Regional Demand Management Plan (Ballina Shire and Byron Bay).	Pass

No.	Option	Description	Conclusion	Result
9c	Managed aquifer recharge with treated wastewater effluent.	Intentional recharge of an aquifer under controlled conditions, either by injection or infiltration, in order to store a water source for later abstraction and use (indirect reuse), or for environmental benefits.	RCC does not currently utilise groundwater apart from emergency sources. Groundwater options including aquifer recharge may be considered feasible pending outcomes of the current studies. This will be treated as a groundwater supply option (similar to the 2014 FWS) as aquifer recharge is not an augmentation option by itself. Based on recent investigations, groundwater options are expected to be limited by location and water quality rather than quantity and therefore aquifer recharge may not be required.	Fail
9d	Potable reuse	Treating sewage effluent to produce reclaimed water of a quality that would be suitable for drinking purposes. This water would then be provided direct to consumers.	The community/regulators are unlikely to support/approve this option while other options are feasible, even though they may have a greater whole-of-life cost.	Fail

The following options were not considered in detail in the development of the 2014 FWS (due to low yield benefit and/or other risks). The findings of the original IWP process are still considered valid and these options will not be considered further in this report:

- Raise RCD.
- Raise ECD.
- Purchasing or trading existing water entitlements from Toonumbar Dam.
- Regional interconnection with Casino water supply (Jabour Weir).
- Managed aquifer recharge with treated wastewater effluent.
- Direct potable reuse - while direct potable reuse is not considered viable at present due to regulatory constraints, RCC will participate in detailed studies to develop the technology required to gain regulatory and community acceptance (refer Section 15.4).
- Stormwater reuse.

The following new options have been considered but did not pass the coarse assessment and will not be considered further in this report:

- Pipeline from existing Toonumbar Dam or Eden Creek to Casino or RCD.
- Regional interconnection with the Tweed Shire Bray Park system.

The “do nothing” option (reliance on existing surface water sources) will not form part of the long-term strategy but will be used to compare the benefits and costs of supply scenarios.

The following options passed the coarse assessment and are discussed in detail in this report:

1. Staged Dunoon dam (20 GL – 50 GL).
2. Connection to Marom Creek WTP (upgraded) with or without local groundwater supplies.
3. Groundwater harvesting – Woodburn, Tyagarah, Newrybar and Alstonville.
4. Desalination.
5. Indirect potable reuse (treated wastewater from constituent council wastewater treatment plants transferred to RCC surface water supplies).

Options involving use of water from Toonumbar Dam will not be considered in the Future Water Project as the NSW Government's infrastructure options study will not be completed within the required timeframe.

Demand management will not be considered as a source augmentation option but will be an integral part of the long-term strategy through the implementation of the RDMP (Section 4).

8. OPTION 1: DUNOON DAM

8.1 Concept Design

The Dunoon dam site is located on Rocky Creek downstream of the existing RCD. The site is approximately 2.5 km west of the village of Dunoon. The dam would store inflows from its catchment up to the existing RCD and from spills over the RCD spillway. Water from Dunoon dam would be pumped to the Nightcap WTP and subsequently used for town water supply throughout the RCC service area.

Three possible dam types were considered in an Options Study (Public Works Dams and Civil, 2013a). The two options considered viable were:

- Earthfill type embankment across the creek with an excavated spillway in the left abutment.
- Roller compacted concrete gravity structure where spill flows are accommodated over the central part of the wall into the creek below.

Although the roller compacted concrete dam would involve a much larger haulage of materials from off-site locations, it requires a significantly smaller footprint on the site, reducing both the physical and visual impact on the local environment and was therefore preferred in the Options Study. A concept design for a 50 GL roller compacted concrete has been prepared (Public Works Dams and Civil, 2013b) including:

- A roller compacted concrete gravity structure with a 30 m wide central overflow spillway.
- A concrete dissipator at the toe of the spillway to collect spill flows and prevent erosion of the foundation and potential undermining of the dam wall.
- An intake structure attached to the upstream face of the wall with facilities for selective withdrawal of water from the storage.
- A conduit located in the creek bed under the dam wall, used initially for creek diversion during construction and then converted to a permanent outlet pipe connecting the base of the intake structure to the valve house immediately downstream of the dam.
- A valve house structure housing the main guard valves and downstream discharge valves as well as the main branch line to the adjacent raw water pumping station.
- A concrete dissipator at the downstream end of the valve house to accommodate outlet flows and avoid erosion of the foundation.
- A pumping station and associated equipment to enable the transfer of raw water from the toe of the dam to existing water mains at Dorroughby.
- 8 km long rising main from the pumping station to Dorroughby.
- 3.3 km of new access road (including two bridges) plus 9 km of upgraded road.
- Power supply, electrical and telemetry facilities.

The additional flow of raw water from Dunoon dam will require the upgrade of Nightcap WTP to 100 ML/d in 2034.

A 50 GL storage provides a full supply level (FSL) at RL 82.25 mAHD. The maximum flood level (MFL) is at RL 90.02 mAHD with the dam crest level at RL 90.60 mAHD which allows for appropriate freeboard as required by the NSW Dams Safety Committee (Public Works Dams and Civil, 2013b).

A 20 GL storage has also been investigated as a possible staged approach to construction of the dam (Public Works Dams and Civil, 2013c). As for the 50 GL arrangement, the 20 GL dam would incorporate a concrete gravity structure with a 30 m wide spillway at the centre of the dam and plunge pool at the

downstream toe. A diversion tunnel would be located at creek bed level, just left of the spillway through the dam wall. This would be converted to an outlet tunnel once construction of the dam has been completed. An intake structure would be attached to the back of the wall while an outlet/valve house would be located at the downstream end together with an associated pumping station. Design features would be incorporated in the 20 GL arrangement to facilitate future raising of the dam:

- The positions of the valve house and pumping station are located downstream of the dam to suit a larger dam.
- Sizing of the pumping station, valve house, pipework and associated equipment has been determined to suit a larger dam.
- The section dimensions for the intake tower allow for possible future raising of the storage to 50 GL.

The 20 GL storage provides a FSL at RL 67.20 mAHD, MFL at RL 74.36 mAHD and the dam crest level at RL 74.96 mAHD.

Figure 8 shows the dam inundation area for the two storage options. The surface area at FSL is 1,650,000 m² and 2,430,000 m² for the 20 GL and 50 GL storage volumes respectively (based on dam stage storage data provided in Public Works Dams and Civil (2013a)). Figure 8 also shows the route of the rising main to Nightcap WTP and the new access road.

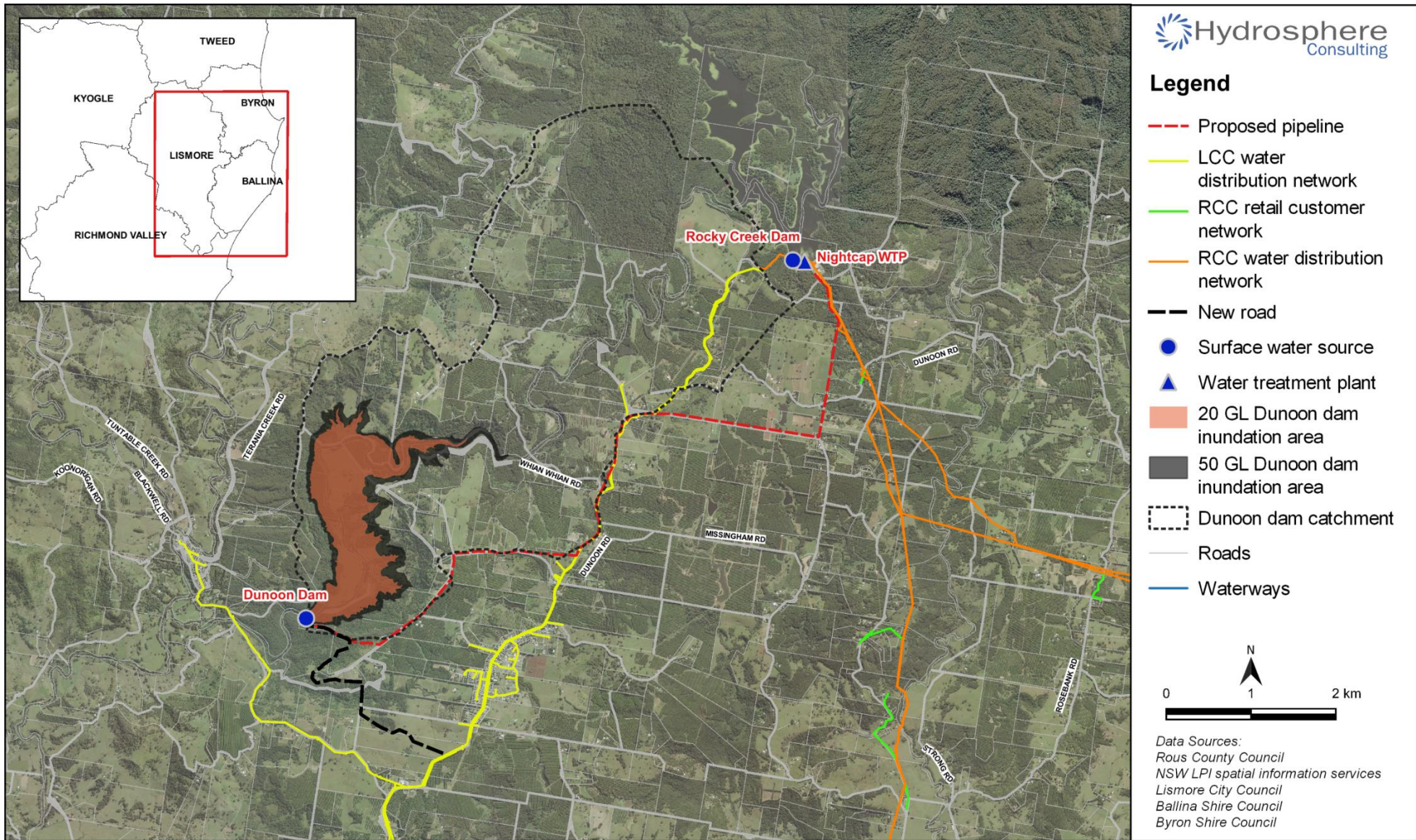


Figure 8: Dam location and inundation area for 20 GL and 50 GL storage options

8.2 Catchment Description

The Dunoon dam would have a catchment area of approximately 19 km². Dunoon dam would also receive overflows from RCD and therefore when RCD is spilling, the Dunoon dam catchment area also incorporates the RCD catchment, giving a total catchment area of 50 km² (Hydrosphere Consulting, 2020c). Figure 9 provides an overview of mixed land use in the catchment. RCC currently owns several parcels of land within the Dunoon dam catchment and would seek to purchase the remaining land within the buffer zone surrounding the dam, should this option be adopted for future water supply. The remaining catchment areas are either protected as parks and reserves or are under private ownership. Whian Whian Falls is a popular recreational location with easy access from the public road. If constructed, the upstream extent of the 50 GL Dunoon dam would be just downstream of the base of the falls. Currently, cleared grazing land makes up approximately 40% of the catchment, horticulture (primarily macadamia farms) occupy 30%, and approximately 18% of the catchment is classified as parks and reserves (the majority of which is within Nightcap National Park). The remaining land uses comprise rural residential lots (4.6%), cropping (2.2%), forestry (1.3%) and rivers and drainage channels (4.4%) (Hydrosphere Consulting, 2020c).

The RCC *Catchment Management Plan 2021-2025* (Hydrosphere Consulting, 2020c) set the strategy for the coordinated management of RCC's drinking water catchments for the next 5 years (2021-2025). The implementation plan for the Dunoon Dam catchment has a strategic focus on land management for land owned by RCC in that catchment. RCC will continue to maintain and improve the condition of riparian buffer zones through regular maintenance, weed control and enhancement. For areas under agistment, RCC will ensure that agistment agreements include requirements for appropriate management to prevent erosion, land degradation and management of priority weeds.

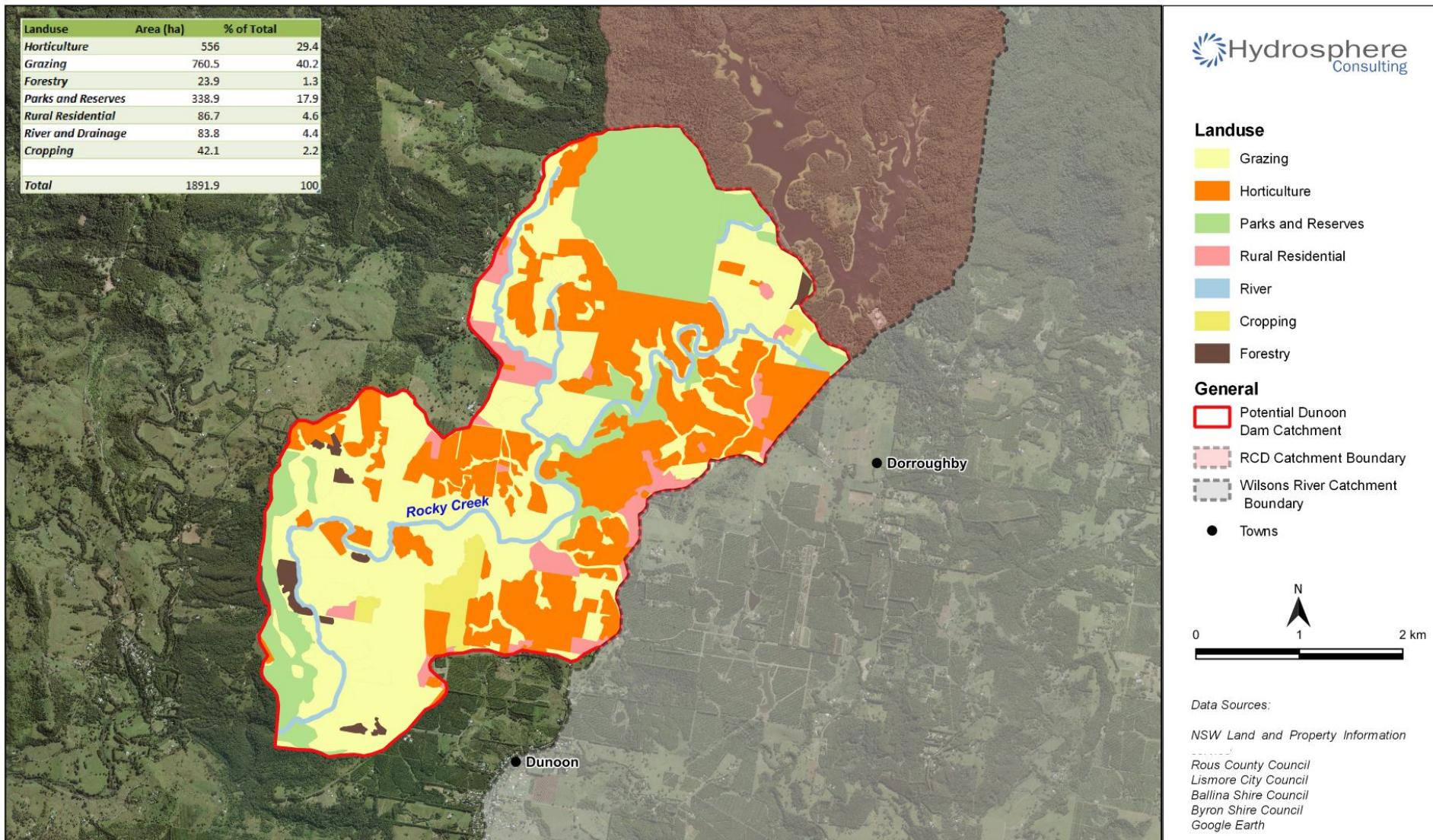


Figure 9: Dunoon dam catchment and existing land use

Source: Hydrosphere Consulting (2020c)

8.3 Planning and Approvals Pathway

RCC has obtained preliminary planning pathway advice for the Dunoon dam proposal (Public Works Advisory, 2020a). *State Environmental Planning Policy (State and Regional Development) SEPP 2011* designates development that is state significant development, state significant infrastructure, critical state significant infrastructure and regionally significant development. The Dunoon dam would be State Significant Development in accordance with the requirements of the State and Regional Development SEPP as the development has a capital investment value of more than \$30 million and is permitted with development consent in land use zone W1 Natural Waterways under the Lismore Local Environmental Plan 2012 and permitted without consent in land use zone RU1 Primary Production under SEPP (Infrastructure) 2007 (as per current land zonings under the LEP). The Minister for Planning (or the Independent Planning Commission) would be the consent authority.

An Environmental Impact Statement (EIS) would need to be prepared in accordance with Schedule 2 of the *Environmental Planning & Assessment Regulation, 2000*. The approvals expected to be required are summarised in Table 12.

Table 12: Summary of likely approvals required

Agency	Requirements	Reference
Department of Planning, Industry and Environment (DPIE)	Development consent	Pt 4, Division 4.7, <i>Environmental Planning and Assessment Act, 1974</i>
Department of Primary Industries - Fisheries	Notification to the Minister for the construction of a new dam	Section 218, <i>Fisheries Management Act, 1994</i>
	Permit for dredging or reclamation work undertaken by a local government authority	Section 200, <i>Fisheries Management Act, 1994</i>
Environment Protection Authority (EPA)	Environment protection licence for extractive activities and concrete works (possible)	Chapter 3, <i>Protection of the Environment Operations Act, 1997</i>
DPIE - Water	Water Access Licence for water use	<i>Water Management Act, 2000</i>
Department of Agriculture, Water and the Environment (Commonwealth)	Referral for significant impact on Matters of National Environmental Significance (MNES)	<i>Environment Protection and Biodiversity Conservation Act, 1999</i> (Commonwealth)

Source: Public Works Advisory (2020a)

8.4 Terrestrial Ecology

A survey and assessment of the terrestrial ecology for the footprint of the dam, the buffer region surrounding this footprint and associated access to the dam wall area (SMEC, 2011) was undertaken to identify ecological constraints to inform feasibility assessments and concept planning for the dam. The study consisted of a desktop assessment and seasonal flora and fauna surveys undertaken between April and October 2010. A summary of the findings of the terrestrial ecological assessment from SMEC (2011) is provided below.

The study area is characterised by extensively cleared agricultural land containing remnant fragments of native vegetation occurring primarily along riparian corridors and a larger fragment within the sandstone escarpments of the west and south of the proposed dam wall. The condition of native vegetation and habitat varied from poor (areas infested with exotic species) to good (less accessible areas around the proposed

dam wall), depending on the level of historic clearing and disturbance from agricultural activities (SMEC, 2011).

One endangered ecological community (EEC), Lowland Rainforest which is listed under the *Threatened Species Conservation Act 1995* (TSC Act), was recorded during field investigations. In addition, nine flora and 17 fauna species (including one frog, one mammal, one fruit-bat, six microbats and eight birds) listed as threatened in NSW under the TSC Act were also recorded. Of these species, eight flora and one fauna species are also listed nationally under the *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act). An additional seven fauna species listed as migratory or marine under the EPBC Act as well as two Rare or Threatened Australian Plants (RoTAP) and three regionally significant plant species were also recorded (SMEC, 2011).

The proposed dam would clear a total of 272 ha of vegetation, of which 57 ha is predominantly native (Warm Temperate Rainforest, Subtropical Rainforest with 34 ha of Lowland Rainforest EEC, Tallowood Open Forest and Flooded Gum-Tallowood-Brush box Open Forest). The loss of rainforest communities is considered to be particularly significant, given the regional history of clearance for timber and plantations and thus fragmented nature of the remnants of these communities (SMEC, 2011).

The dam would remove important habitat features and local linkages for threatened fauna species. In particular, movement pathways for the threatened Koala will be impeded from the installation of the dam wall, spillway and the inundation area. Loss of feeding resources for the listed Grey-headed Flying Fox, Rose-crowned Fruit-dove and White-eared Monarch and nesting resources for migratory birds from the removal of rainforest and Camphor laurel communities is also likely to be significant within the study area. Further, the loss of foraging resources provided within the dry sclerophyll forests, which are rare in the region, will impact on the threatened Glossy-black Cockatoo and Scarlet Robin. Loveridges Frog (*Philoria loveridgei*) was also found just outside the footprint of the proposed dam at a lower elevation and more southerly point than has been previously recorded. Habitat for this species may also be impacted by the proposal (SMEC, 2011).

The works will also remove threatened flora species within the inundation and dam infrastructure areas and their habitat. There is also the potential for indirect impacts through key threatening processes such as the spread of *Lantana camera* and dieback caused by the root-rot fungus (*Phytophthora cinnamomi*) (SMEC, 2011).

Assessment of the impacts (without mitigation) has determined that the works would significantly impact all threatened flora species detected (nine species) and 15 of the recorded threatened fauna species and their habitat within the study area. Mitigations measures have been identified to minimise impacts on terrestrial ecology including design considerations, pre-construction and construction phase actions. Measures to minimise wildlife connectivity impacts, removal of threatened flora and endangered ecological communities and minimising impacts on fauna habitat have also been identified including fauna bridges.

However, residual impacts that cannot be minimised to acceptable levels through mitigation will still be present. Significant impacts are still likely to occur as a result of:

- Loss of Lowland Rainforest EEC.
- Loss of threatened flora species and RoTAP species.
- Loss of threatened fauna habitats.
- Severance of local wildlife corridors.

Habitat and conservation offsets are an option to compensate for these significant impacts to terrestrial biodiversity as a result of the proposed dam. The buffer area surrounding the dam could be used as an offset for the dam, however additional areas may also be required to be reserved for conservation, managed and improved as part of an offset package for the dam, should it proceed. SMEC (2011) recommended that an

Offset Strategy is prepared detailing the location of offsets, ecological restoration requirements, and ongoing management requirements and to investigate opportunities to improve the habitat linkage between Nightcap National Park (5 km to the north and a listed World Heritage Area) along Rocky Creek to the dam site. Although the proposal is likely to have a significant impact on important vegetation within the study area (both endangered ecological communities and habitat for threatened species), there are also large areas within the study area and around it that were once rainforest or wet sclerophyll forest but are now infested with weeds (SMEC, 2011). These areas could benefit from improved management as part of offsets for the project. This has the potential to reduce the significance of the impact of the dam, if managed appropriately. Further assessment of these options would be required prior to seeking project approval.

An assessment of terrestrial ecology impacts will be required in accordance with the provisions of the *Biodiversity Conservation Act, 2016* including requirements of the Biodiversity Offsets Scheme using the Biodiversity Assessment Method.

8.5 Buffer Zone Planning

The establishment of vegetated buffer zones around water supply reservoirs is a recognised catchment management strategy which helps to protect the water quality and reduce risks to water supply. Hydrosphere Consulting (2009) developed a Buffer Zone Strategic Plan through a desktop assessment which analysed the environmental requirements for the buffer zone of the proposed Dunoon dam (50 GL) through an evaluation of industry standards, catchment conditions and water quality risk.

Hydrosphere Consulting (2009) recommends a three-part approach to water quality management in the catchment involving the protection of high-risk areas with the storage buffer, targeted riparian management in the upstream catchment and community education to encourage improved farming practices and land management in the catchment.

The recommended buffer zone identified by the assessment has an average width of approximately 180 m from the maximum inundation area and covers approximately 224 ha of land surrounding the storage. The boundaries for the proposed buffer zone are shown in Figure 10. Despite a high degree of existing vegetation within the proposed buffer zone, there is also a large amount of weed infestation. Significant weed management and/or native planting effort will be required to maximise the biodiversity benefits and water quality protection characteristics of the buffer zone (Hydrosphere Consulting, 2009).

The extent of individual landholdings that form part of the buffer zone would need to be acquired by RCC to implement the buffer zone strategy.

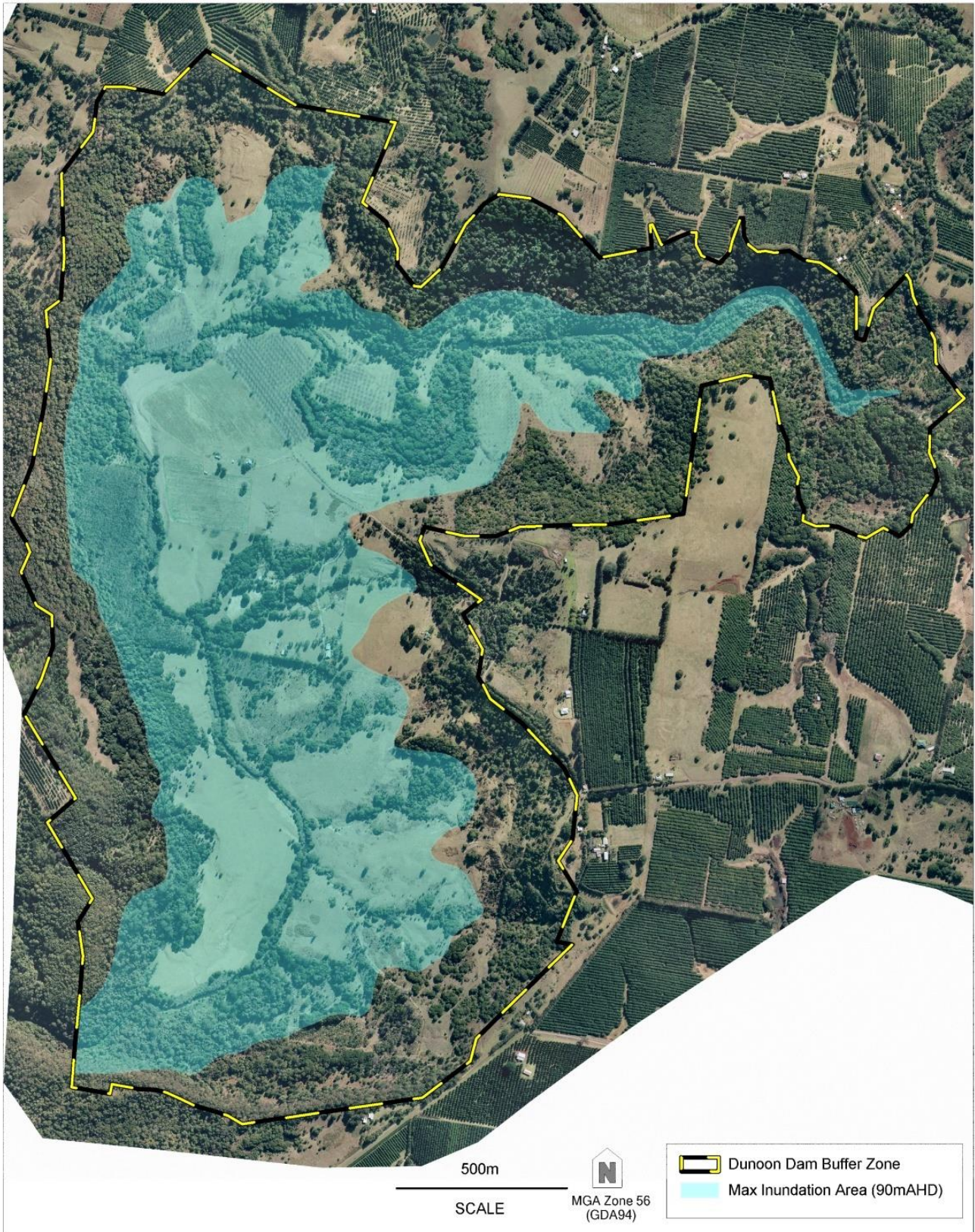


Figure 10: Proposed Dunoon dam (50 GL) buffer zone

Source: Hydrosphere Consulting (2009)

8.6 Aquatic Ecology

An aquatic ecology assessment was undertaken to examine the potential impacts of the proposed dam on aquatic habitats and communities upstream, within and downstream of the proposed dam inundation area (ELA, 2012a). The assessment was updated following a peer review (SMEC, 2012). A summary of the findings of the aquatic ecological assessment from ELA (2012a) is provided below.

A detailed program of desktop and field-based survey was undertaken to examine key aspects of the aquatic ecology. Desktop surveys included review of previous studies in and around the study area and searches of the relevant databases for potential threatened species presence. Field studies included assessment of aquatic and riparian flora, aquatic and riparian habitat, water quality and fauna surveys including fish, other vertebrates (primarily birds, platypus and amphibians) and macroinvertebrates (ELA, 2012a).

The desktop assessment, including database searches, found one EEC, 30 flora, six frog, 24 bird and three mammal species listed as threatened within or around the study area. Three fish species, Eastern Freshwater Cod, Purple Spotted Gudgeon and Oxleyan Pygmy Perch were identified as potentially occurring in the study area (ELA, 2012a).

Flora surveys showed variable habitat condition along the reach with poorer condition generally relating to the level of disturbance or clearing in the immediate catchment surrounding the site. Areas with more intact tree cover showed few exotic species and better overall condition. The number of exotic species showed a general increase downstream from RCD to the Terania Creek sites. Small-leaved Privet, Camphor Laurel and Lantana were significant weed species found in several riparian zones. Brazilian Watermilfoil was identified as a potentially significant exotic macrophyte (ELA, 2012a).

The water quality assessment identified that the current water quality is good with most key parameters falling within or below the ANZECC specified range. The large pool below the proposed dam wall remained weakly thermally stratified for the entire survey period and there were several short periods where the temperature difference between the surface and bottom temperatures was greater than 1°C, indicating that stratification is a normal part of the function of that pool. Flows of approximately 20 ML/d (at RCD) for several days were sufficient to reduce thermal stratification to less than 1°C. Water quality is maintained in this system by low and even base flow levels (ELA, 2012a).

Aquatic macroinvertebrates surveys recorded 5,055 individuals from 73 families and 23 orders. Vertebrate surveys identified 13 fish species, two frog species and 28 bird species, with no rare or threatened species recorded. No introduced fish species were found. Platypus surveys identified individuals at several sites during various surveys and burrow clusters were found at the three sites surveyed (ELA, 2012a).

Wildlife database searches identified that the Eastern Freshwater Cod, Purple Spotted Gudgeon, Oxleyan Pygmy Perch and Black Necked Stork may occur in the study area, however, these species were not recorded during the field surveys. An assessment of significance determined that the proposed dam is unlikely to have a significant impact on these species (ELA, 2012a). Given records and potential habitat for this species in the area, ELA (2012a) recommended that additional survey work undertaken for a more detailed impacts assessment should consider the occurrence of these species and whether assessment under the EPBC Act is required.

Mitigation measures and monitoring requirements were recommended to address the impacts on aquatic ecology resulting from the altered flow patterns in Rocky Creek as a result of the construction and operation of the proposed dam. As there are no current provisions for controlled release of water from RCD, there are few if any flow related management measures that can be implemented upstream of Dunoon dam. The channel form and ecological function of impacted reaches has stabilised following the adjustment to the impact of the current operation of RCD and has an armoured bed, as such this reach is resistant to impacts from change in flow regime including the reduction in spilling flows from RCD. ELA (2012a) recommended that practical management upstream of the Dunoon dam should focus on improving general catchment and riparian condition to minimise sedimentation processes through stock exclusion and the planting of riparian

endemic native species. Minor flow-based management may be achieved through refinement of operating rules to achieve balance between sustainable yield of both dams and minimise hydrological impacts on this reach may be possible.

Potential mitigation measures within the inundation area were also identified including stratification, algae control, sediment and nutrient trapping, foreshore management and offsetting the loss of aquatic and riparian habitat within the inundation area. Offsetting and/or conservation options within the larger Terania Creek catchment are recommended in the assessment of environmental flows (ELA, 2012b).

The assessment of environmental flows (ELA, 2012b) discussed in Section 8.7 has proposed an environmental flow regime for the proposed dam to protect the key aspects of creek hydrology, ecology, process and function. Maintaining (or improving) the environment through the environmental flow regime will largely negate the requirements for further significant mitigation measures. The low flow contingency releases will act to improve the environment for key species with connecting releases and other habitat provision when the current flow regime would remain unconnected (ELA, 2012a).

The construction of a fish ladder or lift is not recommended by ELA (2012a) as it would likely only provide artificial lake habitat for migrating species as Whian Whian Falls at the upstream end of the proposed dam lake acts as a natural migration barrier to habitats further upstream. If species were able to migrate beyond Whian Whian Falls they could only access the additional reach to the RCD wall. In this case the potential habitat quantity and quality above the proposed dam wall does not justify the expense of a fish ladder (ELA, 2012). In preference to a fish ladder, options to improve the aquatic and riparian habitat in the larger Terania catchment through fencing from stock and establishment of an endemic native riparian buffer are preferred by ELA (2012a). This buffer will act to improve the riparian and aquatic habitat through the reduction of inflowing sediment and nutrients, improve water quality through shading and provision of endemic organic material and the creation of habitat for riparian and semi-aquatic species.

Hydrosphere Consulting (2020d) considered that the proposed dam will present a barrier to both upstream and downstream fish migration. It is important that environmental flow design is undertaken with due consideration of fish passage and options for integrated design to achieve optimum outcomes. For example, there is potential for any environmental flows to attract fish to the base of the dam and without a fishway to facilitate movement further upstream, the fish may aggregate at this location and be susceptible to increased predation and potentially poor water quality which could result in fish kills. Additionally, fishways require water to run, which provides opportunities for using this operational water to provide a base environmental flow.

The aquatic ecology and environmental flows assessment may also require more detailed assessment to focus on the proposed dam disturbance and inundation area. ELA (2012a) also recommended that the Offset Strategy (refer Section 8.4) should include mitigation of potential impacts on aquatic and riparian habitat.

8.7 Environmental Flows

An environmental flow assessment was undertaken to determine if an environmental flow regime within the Rocky Creek system could be developed that would maintain and/or improve the downstream environment, in consideration of ecological needs and the current legislative framework (ELA, 2012b). The assessment was updated following a peer review (SMEC, 2012). A summary of the findings of the environmental flow assessment from ELA (2012b) is provided below.

A holistic study was undertaken to examine the environmental flow requirements of the current system. This approach integrated information from a range of disciplines including ecology, hydrology, water quality and geomorphology. A combination of desktop review, hydrological and geomorphic modelling and field studies was undertaken by ELA (2012b) to determine the key flow requirements of the system.

Modelled flows at a daily time-step at several points along Rocky Creek, Terania Creek and Leycester Creek using the Integrated Quantity Quality Model (IQQM) were used in the review for a 114-year period. Flow data for the natural and current (with RCD online and current system operating rules) were compared to determine the nature of the hydrological regime in the creek system. Assessment and comparison of data was undertaken via examination of hydrographs for different periods, key flow statistics such as mean, maximum and minimum, flow duration analysis, flood frequency analysis and determination of the rates of rise and fall of flood events.

Field investigations undertaken by ELA (2012b) included detailed survey of the physical stream environment including channel morphology and the relationship between flow and physical processes. Ecological and environmental surveys were undertaken to detail key species (flora and fauna), water quality and habitat at three time periods from October 2010 to June 2011 to capture seasonal variations. Field surveys were conducted at a range of locations to facilitate comparison between different potential impact zones and an unimpacted control area.

Hydrological assessment showed that both the natural and current Rocky Creek flow regimes are highly variable with extended periods of low flows and floods occurring at any time of the year. RCD has reduced flows downstream of the dam from the base flow to moderate flow range, but larger flood events are largely unaffected as they tend to fill and spill the dam. Data for natural flows show key flow components of base flows (2-6 ML/d), low flows (6-30 ML/d) and moderate flows (30-200 ML/d) are responsible for maintaining key ecological, water quality and channel functions. High flows (>200 ML/d) including floods greater than 17,000 ML/d provide for channel disruption and formation processes through movement of large cobbles and high energy flows (ELA, 2012b).

Geomorphic assessments showed that Rocky Creek below RCD is largely confined, with limited potential for erosion. The main unarmoured zone of Rocky Creek will be inundated by the proposed dam. Below RCD, the character of the channel is dominated by boulder and bedrock structures. These channel types are predominantly controlled by large flood events (ELA, 2012b).

Water quality in the system was indicative of good condition throughout the survey period. Nutrients, turbidity and chemical characteristics were all either well within the recommended ANZECC guidelines or where these guidelines were not met were in a range that is not critical to biota, ecological processes or physical function or the creek system (ELA, 2012b).

The flora and fauna in Rocky Creek are adapted to a flow regime dominated by disruptive high flows that move large and small sediments and scour in-stream and riparian vegetation. Maintenance of a flow regime that provides for irregular high flows and maintains base to moderate flow variability, including natural rates of rise and fall, should maintain and/or improve channel habitats and ecological condition in the Rocky Creek system downstream of the proposed Dunoon dam. At the key flow level of 100 ML/d the main fish barriers downstream of the proposed Dunoon dam infrastructure are open for migration to all potential fish species including the threatened Eastern Freshwater Cod (ELA, 2012b).

Following detailed survey and assessment of the hydrology, geomorphology, water quality and aquatic ecology of the Rocky Creek system a set of environmental flow rules was established by ELA (2012b) with the specific objective to maintain or improve the environmental and habitat values downstream of the proposed dam. These flow rules provide for a largely unchanged flow regime for flows up to 100 ML/d with contingency flows provided for prolonged dry periods. The general flow rules are:

- Transparency of inflows up to 100 ML/d at Dunoon dam.
- If inflow to Dunoon dam exceeds 100 ML/d, maintain release of 100 ML/d.
- When inflow to Dunoon dam drops below 100 ML/d, allow natural rates of fall.
- If the unregulated spill exceeds 100 ML/d, no transparent release.

Further a set of contingency rules was developed by ELA (2012b) to permit longitudinal channel connection in key fish migration periods during prolonged dry periods. These rules are:

- If inflow to Dunoon dam is less than 0.7 ML/d, maintain release from Dunoon dam of 0.7 ML/d.
- If, by March 1, there has been < 3 days of inflows \geq 100 ML/d (either as one or multiple events) over the preceding 60 days, release 100 ML/d for 3 consecutive days.
- If, by August 1, there has been < 3 days of inflows \geq 100 ML/d (either as one or multiple events) over the preceding 60 days, release 100 ML/d for consecutive 3 days.
- If, by October 1, there has been < 3 days of inflows \geq 100 ML/d (either as one or multiple events) over the preceding 50 days, release 100 ML/d for consecutive 3 days.

These general environmental and contingency flow rules provide for a largely unchanged flow regime for flows up to 100 ML/d. Field assessment undertaken by ELA (2012b) showed that at this level all key barriers downstream of the main proposed dam infrastructure are open to Eastern Freshwater Cod movement. In addition, flows in this range (base to moderate flows) provide for the other key environmental processes of fauna habitat provision, movement of smaller fish and other vertebrates, fine sediment flushing and water quality maintenance. Contingency flows potentially enhance the system by introducing flow pulses in periods where the current system had sustained low flows (ELA, 2012b).

Detailed assessment of the potential impacts of the proposed dam on the flow regime of the Rocky Creek system considering the proposed environmental flow regime and changes to the operation of other water supply resources was undertaken by ELA (2012b). The environmental flow regime provides a substantial mechanism to minimise the impacts of dam operation on the Rocky Creek system while maintaining the downstream environment. Whole-of-catchment solutions will also assist in mitigating impacts of the proposed dam. The conservation of native vegetation riparian zones, including the buffer zone surrounding the dam as well as the creeks that make up the Terania system (i.e. Rocky Creek, Tuntable Creek and Terania Creek) will help to maintain and improve water quality and habitat for aquatic species, including those identified threatened species (ELA, 2012b).

The environmental flows assessment also recommended that mitigation measures should be incorporated into environmental management plans relating to both construction and operation to manage impacts on the system as a result of the proposed environmental flow regime. Monitoring of hydrology, water quality and aquatic ecology during the pre-construction and operational phases of the project was also recommended.

The review of environmental flow regimes (Hydrosphere Consulting, 2020d) concluded the following in relation to Dunoon dam:

- Previous assessment of environmental flows by ELA (2012b) followed a holistic approach incorporating multi-faceted ecosystem components and supported by field survey data and modelled flow data under a range of flow scenarios. The study was completed over 8 years ago but the methods employed remain valid and reflect contemporary environmental flow assessment methods.
- One exception was the reliance on a small number of benchmark fish species to establish environmental flow requirements. Further investigation of fish species within the subject site and connected aquatic environments is recommended to update species information and allow for a comprehensive assessment as to the suitability of the environmental flow regime proposed by ELA (2012b). This would include providing more information to determine whether the presence of key species used in determining environmental flows (e.g. Eastern Freshwater Cod) occur naturally or only exist through artificial stocking.
- Should Dunoon dam be considered further as a future source, there may be opportunities for development of a balanced system of synergistic operating rules and environmental flow releases from RCD to Dunoon dam, providing benefits for Rocky Creek in the reach between the two dams (approximately 8 km).

8.8 Cultural Heritage

A preliminary Heritage Impact Assessment was undertaken for the proposed Dunoon dam (Ainsworth Heritage, 2013). The assessment was updated following a peer review (Australian Museum Business Services, 2012). A summary of the findings of the heritage assessment from Ainsworth Heritage (2013) is provided below.

Ainsworth Heritage (2013) reviewed the Aboriginal and non-Aboriginal history of the Dunoon area. Settlement of the area was undertaken first by the Widjabul people of the Bundjalung Nation, who were then displaced from the land by white settlers. The arriving white settlers first cleared and then cultivated the land for various crops, a process that has continued to the current day.

Based on the information gleaned from the research phase of the assessment, a field survey was undertaken which sought to identify and record both Aboriginal and Non-Aboriginal sites. Thirteen Non-Aboriginal sites were located, which were assessed to have varying significance of a local nature. The most notable sites were the Depression era causeway and the Fraser Road and McPherson Homesteads. Numerous Aboriginal sites were located, consisting of scarred trees, grinding grooves, artefacts and a collection of burials. The collection of Aboriginal sites together is generally of State significance, allowing assumptions on how the Widjabul utilised and accessed the valley over time. Large sections of the dam area were inaccessible due to a combination of thick vegetation and steep terrain in conjunction with inclement weather patterns. The recommendations of the assessment have outlined where additional research will be required to ensure that any future impact is properly assessed and mitigated if the proposed dam is to go ahead.

Due to the nature of the proposed development, the vast majority of sites will undergo high impact which will result in the loss of most of the sites unless mitigation measures are put in place. As part of the review of the draft report, the views of both the Aboriginal Stakeholders and the wider community was sought in order to ensure that the management and mitigation measures, largely concerned with recording and recovery, are undertaken in consultation and conjunction with the relevant stakeholders. This is in accordance with OEH guidelines and will provide much greater certainty for the recommendations and conclusions of the report.

Non-Aboriginal heritage within the proposed dam site which would see high impact has been determined to be of little or no significance and presents no impediment to any future plans for the site. However, management recommendations have been developed by Ainsworth Heritage (2013b) for individual sites

Ainsworth Heritage (2013b) considers that there remains a risk that the approval of the proposed development may be refused on heritage grounds. The assessment recommends that further investigations of the burials with limited excavation is undertaken, subject to relevant approvals and not before all other water augmentation options have been considered. Areas for future assessment for Potential Archaeological Deposits (PADs) have also been identified. Continued consultation with Aboriginal stakeholder groups as to the best methods of protection for all identified sites is also required (Ainsworth Heritage, 2013).

Based on the inundation area (Figure 8), most cultural heritage sites are likely to be impacted through inundation for both the 20 GL and 50 GL storages (apart from the eastern-most site and the historic site to the south-east) although the elevation of the sites has not been documented. The two historic sites to the north may be outside the inundation area for the 20 GL dam. The Aboriginal marked trees in the dam infrastructure area could potentially be protected. Inundation of the sites with a smaller dam (FSL at lower elevation) has not been determined.

8.9 Secure Yield

NSW Urban Water Services (2013) assessed the yield benefit from the 20 GL and 50 GL Dunoon dam for the current climate and 1°C warming as part of the IWP process (Table 13).

Table 13: Increase in system secure yield with Dunoon dam

Option	Historic climate (5/10/10)	Reduction factor ¹	1°C climate warming
20 GL Dunoon dam	9,750	0.858	8,366
50 GL Dunoon dam	20,450	0.858	17,546

Source: NSW Urban Water Services (2013)

1. Reduction factor was not calculated for the 20 GL option and the factor for the 50 GL option has been applied.

The secure yield will be re-assessed using the RCC Bulk Water Supply Security Model to optimise transfer and operating rules. The 2020, 2030 and 2060 secure yield of the Dunoon dam options is shown in Figure 11, using a similar approach as for the current system (Section 6.2).



Figure 11: Secure yield estimates – Dunoon dam options

8.10 Cost Estimates

Preliminary cost estimates have been developed by NSW Public Works Advisory (2020b) for the capital and operating costs of the 50 GL and 20 GL Dunoon dam options as detailed in Table 14. Net present value (NPV) calculations are included in Appendix 1. The cost estimates for the 20 GL dam assume that it will be raised in future to a 50 GL dam (i.e. transfer systems and other infrastructure are sized for the 50 GL dam). The cost of a 20 GL dam without provision for the dam raising has not been estimated.

Table 14: Dunoon dam preliminary cost estimate

Component	20 GL dam, (2020 \$)	50 GL dam, (2020 \$)
Roller compacted concrete dam	\$80,473,250	\$112,275,735
Pumping station	\$16,091,790	\$16,091,790
Rising main	\$18,901,740	\$18,901,740
Roadworks	\$17,345,900	\$17,345,900
Indirect costs	\$55,384,835	\$55,384,835
Total initial capital cost	\$188,197,515	\$220,000,000
Renewal costs (80 years)	\$53,660,100	\$54,280,200
Maintenance costs (80 years)	\$11,750,275	\$12,190,755
Operating costs (80 years)	\$110,083,461	\$110,515,416
Whole-of-life (80 years)	\$363,691,351	\$396,986,371
NPV (80 years @ 5%)	\$204,345,989	\$234,596,513
NPV (40 years @ 5%)	\$196,325,548	\$226,526,974
Yield benefit (2020 – 2060) ML/a	7,179	15,057
NPV/ML secure yield (40 years)	\$27,347	\$15,045

8.11 Power Consumption

The total estimated power consumption for the dam options is shown in the following table.

Table 15: Power consumption – dam options

Component	Production (average 2030 – 2060, ML/a)	Consumption (kWhr/kL)	Energy use (average 2030 – 2060, MWhr/a)
Dam (20 GL or 50 GL)	3,906	1.60	6,250
Nightcap WTP upgrade	3,906	0.91	3,554

Source: MWH (2014)

8.12 Data Gaps and Key Risks

To progress the development of the Dunoon dam option, data gaps and risks need to be addressed as discussed in the following table. These would be undertaken as part of planning stages and would be completed prior to a decision to proceed with the planning and approvals for the dam option (outlined in Section 8.3).

Table 16: Data gaps and project risks – Dunoon dam

Item	Discussion	Action required
Additional concept design	<ul style="list-style-type: none"> • Preliminary longitudinal elevation plans for the proposed rising main and construction and easement acquisition costs. • Infrastructure maintenance and renewal requirements. • Design basis for all aspects of the project to provide the basis for detailed design. • Destratification options. • Review of capacity of Corndale quarry to supply aggregate. • Dam amenities, site security landscaping and revegetation. • Confirmation of power supply arrangements. • Environmental monitoring requirements. • Construction strategy. • Procurement and contracting strategy. • Detailed project program. 	RCC has commenced these investigations.
Dam break study	<ul style="list-style-type: none"> • Dam design in accordance with the latest (2019) Dam Safety Regulations and ANCOLD Guidelines. 	RCC has commenced these investigations.
Road upgrade requirements	<ul style="list-style-type: none"> • Assessment of road transport network and road improvements required. 	RCC has completed these investigations.
Cost estimates	<ul style="list-style-type: none"> • Review of total project (capital) cost estimations for both the 20 GL and 50 GL dam. • Peer review of capital and recurrent costings. • Identification of RCC costs. • Risk and opportunity assessment to identify contingency allowances. 	RCC has commenced these investigations.
Hydrology	<ul style="list-style-type: none"> • Revised flood hydrology to provide updated loading on the dam structures for the dam break study with additional hydrographs to assess downstream flood impact. • A review of all hydrology in accordance with Australian Rainfall and Runoff (2016/2019). • Flood impact assessment. 	RCC has commenced these investigations.
Mini hydropower	<ul style="list-style-type: none"> • Assessment of economic viability of downstream discharge structure to incorporate mini-hydroelectricity generation plant feeding power to the site and/or the electricity grid. 	RCC has commenced these investigations.
Geotechnical investigations	<ul style="list-style-type: none"> • Comprehensive geotechnical investigations are required for the storage basin and the roller compacted concrete wall and all appurtenant structures to refine the geological model and to prove the properties of construction materials. • Geotechnical investigations are also required for the raw water rising main and new access road. 	Detailed design stage - while the geotechnical conditions of the site represent significant risk to the project, the intrusive nature of the investigations precludes further work at this stage.

Item	Discussion	Action required
Community engagement	<ul style="list-style-type: none"> Development and implementation of a community engagement strategy is required. 	<p>RCC has commenced consultation activities as part of the assessment of supply scenarios (Section 14). An ongoing engagement strategy will be developed as part of the outputs of the Future Water Project 2060.</p>
Survey	<ul style="list-style-type: none"> Detailed survey of the pipeline route, access road and dam infrastructure locations is required. Downstream development data would also be required for the dam break study. 	Detailed design stage.
Detailed design	<ul style="list-style-type: none"> Detailed design of all infrastructure. An updated seismic hazard assessment and time history analysis should be obtained from the Seismic Research Centre from which appropriate earthquake load accelerations and parameters could be derived. 	Detailed design phase
Biodiversity offset strategy	<ul style="list-style-type: none"> Preparation of Biodiversity Development Assessment Report in accordance with <i>the Biodiversity Conservation Act, 2016</i>. Review of offset requirements to include mitigation of potential impacts on aquatic and riparian habitat. Development of an offset strategy and potential stewardship arrangements. 	Specialist studies
Aquatic ecology and environmental flows	<ul style="list-style-type: none"> A fishway is not currently included in the concept design. More detailed investigation of fish species within the subject site and connected aquatic environments, the interactions between the environmental flow regime, upstream and downstream environments and aquatic ecology is required. Development of a balanced system of synergistic operating rules and environmental flow releases from RCD to Dunoon dam may provide benefits for Rocky Creek in the reach between the two dams. The ELA (2012b) recommends further study of the increase in the peak magnitude of flood events given that the current modelling of flow regimes that included RCD and Dunoon dam at full capacity indicated that some flow events may lead to increased flood peaks above those that might have occurred in a natural regime. This model should include capacity to model water temperature, sediment and other water quality parameters to provide for a detailed hydro-dynamic assessment of the proposed dam. Consultation with DPI-Fisheries. 	Specialist studies

Item	Discussion	Action required
Buffer zone planning	<ul style="list-style-type: none"> • Land acquisition of buffer zone area. • Vegetation survey to confirm the level of rehabilitation work required in the area. • Development of management plans for the water quality protection areas and for the remaining catchment outside of the buffer zone. • Development of a water quality management system for the Rocky Creek/Dunoon dam system. 	Specialist studies
Cultural heritage	<ul style="list-style-type: none"> • Ainsworth Heritage (2013b) recommends that further investigations of the burials with limited excavation is undertaken, subject to relevant approvals and not before all other water augmentation options have been considered. • Areas for future assessment for PADS have also been identified. • Continued consultation with Aboriginal stakeholder groups. 	Specialist studies

8.13 Recommendation

Council's preliminary investigations to date show that the proposed Dunoon Dam is technically viable and would provide a significant yield increase although cultural heritage and ecological concerns are key considerations. If this option is pursued, further detailed studies would be required. These studies would be expected to take three years to complete.

9. OPTION 2: MAROM CREEK WTP

9.1 Background

The Marom Creek water supply and WTP are owned and operated by BaSC. The Marom Creek water supply serves Meerschaum Vale, Wardell, Cabbage Tree Island and some rural customers. Water is sourced from a weir pool on Marom Creek. The water access licence entitles BaSC to extract 200 ML/a. The Ellis Road and Lindendale bores were formerly used to supply drinking water however they have been decommissioned. BaSC has existing licences to extract groundwater from these supplies (350 ML/a and 200 ML/a respectively).

Marom Creek WTP currently supplies a population of approximately 830 people with a maximum demand of up to 550 kL/d. The WTP has a capacity of 2.3 ML/d, limited by the capacity of the clear water pumps (CWT, 2018). The existing plant and raw water source have the capacity to supply the existing BaSC service area until 2036 (750 kL/d), however the WTP requires upgrading in order to be able to meet water quality targets. The existing surface water licence (548 kL/d) is sufficient to supply the current demand.

BSC has developed a 20-year Master Plan for the Marom Creek WTP (Master Plan) and related assets (CWT, 2018). The Master Plan identifies WTP improvements required to address operational issues, process performance and monitoring, maintaining compliance with drinking water quality standards, refurbishment or replacement of existing assets and maintaining capacity to meet current and future demands. The Master Plan covers the Marom Creek catchment and supply from Marom Creek Weir including demand requirements for existing Wardell customers and potential servicing of Alstonville and Wollongbar (currently served by the RCC bulk supply system).

Use of the Marom Creek weir and WTP are listed as a potential emergency supply options in the *Regional Water Supply Drought Management Plan* (Section 3).

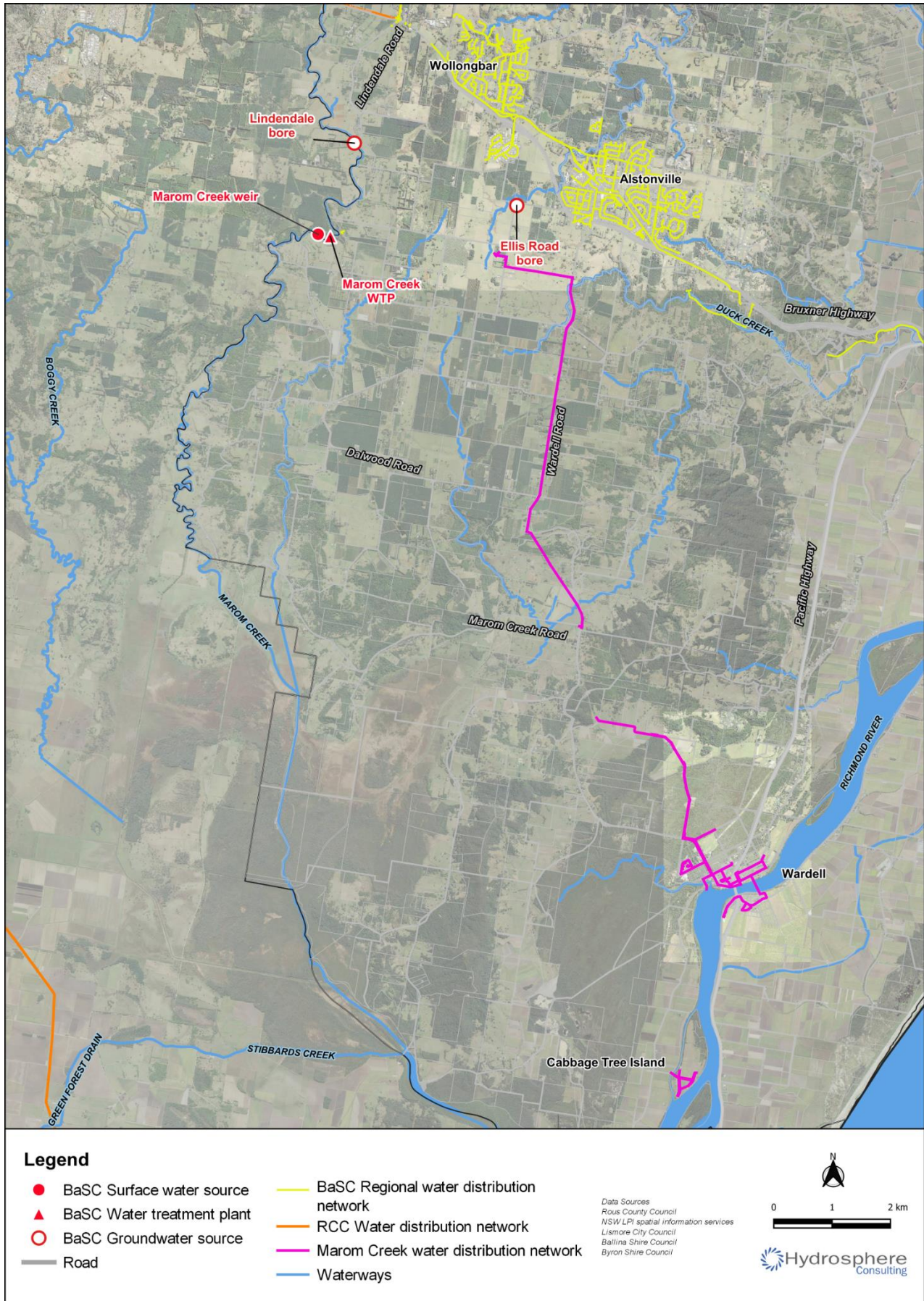


Figure 12: Marom Creek water supply

GIS data for the groundwater transfer and treated water distribution pipelines provided by BaSC appear to be incomplete.

9.2 Secure Yield

Data on current secure yield of Marom Creek Weir assumed in the Master Plan was based on a secure yield study (NSW Urban Water Services, 2017). This study assesses the current and future secure yield from the weir storage with capacity of 66 ML and 420 ML (based on two different estimates of existing storage capacity), Marom Creek WTP capacity (existing 225 kL/d and upgraded to 4.75 ML/d) and the licence extraction limit (200 ML/a).

The yield of the existing Marom Creek weir has been assessed as sufficient to service Wardell into the future (CWT, 2018). The yield of the surface water with storage capacity of 66 ML with no limit on raw water transfer was found to be 417 ML/a, reducing to 299 ML/a with climate change (NSW Urban Water Services, 2017). However, the yield is limited by the existing licence limit of 200 ML/a. Source augmentation would be required to service other areas e.g. Alstonville or parts of Lismore. The existing yield of the Marom Creek water supply is shown on Figure 13.

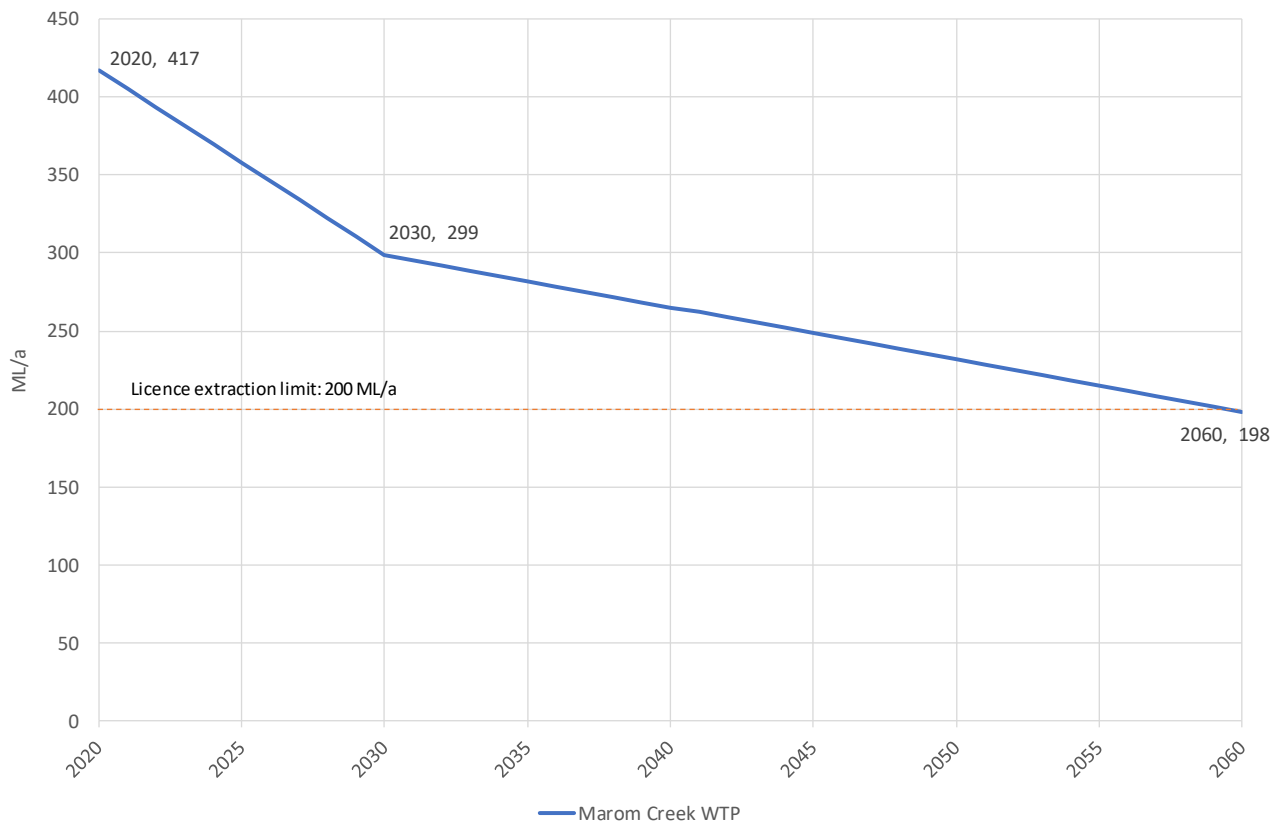


Figure 13: Secure yield estimates – Marom Creek

Options considered in the Master Plan (CWT, 2018) to increase the supply of water were:

- Raising Marom Creek weir to increase storage to 420 ML. There has been limited investigation into the feasibility of this option.
- Gum Creek Weir - a small, disused weir located near the intersection of Gum Creek and Dalwood Road.
- Lindendale and Ellis Road bores - aquifer supplies previously used for drinking water (and included in the RCC operating rules when RCC reaches 30%).

The Master Plan recommended a supply strategy including raising Marom Creek Weir and increasing the licence extraction limit to 1,258 ML/a (future demand of Wardell, Alstonville and Wollongbar is predicted to

be 1,126 ML/a) and refurbishment of Ellis Road bore and connection to Marom Creek WTP (to be upgraded).

The RCC yield study report (NSW Urban Water Services, 2018) assessed the yield of the RCC bulk supply system with Marom Creek water supply included and found that the secure yield with historic climate would increase by 932 – 1,011 ML/a depending on the Wardell demand (not considering the existing licence limit or WTP capacity).

The option considered in this report involves transfer of the Marom Creek WTP to RCC with the excess capacity used to serve Alstonville, Wollongbar and potentially Lismore. The current spare capacity of the WTP is 0.8 ML/d (198 ML/a). Future augmentation of the Marom Creek WTP is possible (e.g. to 4.3 ML/d as proposed by CWT (2018)). This relies on increasing the surface water licence limit to supply the extra raw water demand. WTP upgrades would also be required to meet water quality requirements.

9.3 Cost Estimates

Preliminary cost estimates have been developed by CWT (2018) for the capital and operating costs of the Marom WTP upgrade as detailed in Table 17. NPV calculations are included in Appendix 1.

Table 17: Marom Creek WTP upgrade preliminary cost estimate

Component	Cost Estimate (2020 \$)
Engineering	\$1,831,750
WTP upgrade	\$7,327,000
Total initial capital cost	\$9,158,750
Renewal costs (80 years)	\$5,641,791
Maintenance costs (80 years)	\$49,365,702
Operating costs (80 years)	\$19,402,383
Whole-of-life (80 years)	\$83,568,626
NPV (80 years @ 5%)	\$24,561,843
NPV (40 years @ 5%)	\$22,088,688
Yield benefit (2020 – 2060) ML/a	198
NPV/ML secure yield (40 years)	\$111,559

9.4 Power Consumption

The total estimated power consumption for the Marom Creek WTP option is shown in the following table.

Table 18: Power consumption – Marom Creek WTP option

Component	Production (ML/a)	Consumption (kWhr/kL)	Energy use (MWhr/a)
Marom Creek WTP upgrade	1,570	0.91	1,421

Source: CWT (2018)

9.5 Data Gaps and Key Risks

To progress the development of the Marom Creek option, data gaps and risks need to be addressed as discussed in the following table. These would be undertaken as part of planning stages and would be completed prior to a decision to proceed with the planning and approvals for the option.

Table 19: Data gaps and project risks – Marom Creek

Item	Discussion	Action required
Licence limit	<ul style="list-style-type: none"> Increased extraction limit will be required to meet future demand 	RCC has had preliminary discussions with DPIE – Water which indicate that it will be possible to increase the extraction limit. Further liaison with DPIE-Water is required.
Asset ownership	<ul style="list-style-type: none"> Assets are currently owned by BaSC. 	RCC will liaise with BaSC regarding the potential for transfer of assets.
Secure yield	<ul style="list-style-type: none"> Existing system – storage volume is to be confirmed and yield to be re-assessed if required. Groundwater options – requires assessment. Weir raising – requires re-assessment following detailed storage survey. Optimisation of yield with connection to existing regional supply. 	RCC will liaise with BaSC regarding the investigations required.
Concept development	<ul style="list-style-type: none"> Confirmation of water source, WTP, service area and transfer system concept. 	RCC will liaise with BaSC and regulatory agencies regarding the investigations required.
Community engagement	<ul style="list-style-type: none"> Development and implementation of a community engagement strategy is required. 	RCC has commenced consultation activities as part of the assessment of supply scenarios (Section 14). An ongoing engagement strategy will be developed as part of the outputs of the Future Water Project 2060.
Detailed design	<ul style="list-style-type: none"> Detailed design of all infrastructure. 	Detailed design phase
Cost estimates	<ul style="list-style-type: none"> Review of total project cost estimates 	Detailed design phase

9.6 Recommendation

The use of Marom Creek weir and WTP as part of the RCC regional supply system, to service Alstonville and Wollongbar in addition to Wardell (the current BaSC service area) is considered viable with a short lead time and therefore should be considered as an initial stage of potential regional supply scenarios.

10. OPTION 3: GROUNDWATER

10.1 Background

Detailed investigations into the identification and assessment of groundwater sources were undertaken in 2015 (Jacobs, 2015a; Jacobs, 2015b; Jacobs, 2015c; Jacobs, 2015d; Jacobs, 2015e) to review the available data and information on regional groundwater sources. Based on an assessment of the geology and hydrogeology, the initial studies identified three areas with the potential to host groundwater supply schemes at North Lennox Head-Newrybar (coastal sands aquifer), Woodburn (coastal sands aquifer) and Dunoon (basalt). In 2016, three stages of drilling programs were undertaken in these three areas to further investigate the groundwater yields and water quality (Jacobs, 2017a; Jacobs, 2017b; Jacobs, 2017c). As a result, the investigations were expanded to include the Tyagarah area and the basalt aquifer in the Alstonville area. Further desktop, surface geophysical and hydrogeological investigations of the areas identified at Tyagarah and Newrybar were undertaken to identify the areas with the potential to provide groundwater supply (Groundwater Imaging, 2017).

The final locations for groundwater supply options have been identified in the detailed investigations as follows:

1. Woodburn.
2. Newrybar.
3. Tyagarah.
4. Alstonville.

The water quality risk assessment carried out for each of these areas provided guidance for development of these options including the appropriate drinking water treatment processes that should be applied in each area to deliver water that complies with the Australian Drinking Water Guidelines and the level of risk mitigation required to address the potential hazards identified due to the location of the bores and the nature of the borefield recharge areas.

10.2 Environmental, Land Use and Heritage Considerations

Jacobs (2015b) provided a high-level review of environmental, land use and heritage issues within the study area to provide context to potential source areas and schemes. Issues covered included:

- Planning and statutory requirements – there were no issues identified that would present a risk to approvals for investigation or development stages for the final locations.
- Land contamination – no areas of contamination were identified that would make the final sources unsuitable as a source of water.
- Heritage – potential impacts on known heritage sites were considered.
- Environmental issues that may impact on the sustainability of different sources. Environmental issues considered for the development of the permanent bores were:
 - Potential impact on groundwater dependent ecosystems (GDEs) and flows in waterways where groundwater contributes significantly. While these impacts can generally be managed, potential impacts were avoided.
 - Proximity to acid sulphate soil areas – lowering of groundwater tables may result in the oxidation of these soils and associated impacts.

- Direct and indirect impacts of supporting infrastructure to permanent bores. This includes pipelines to connect the bores to regional water reticulation networks, pumping stations, water treatment facilities etc. In terms of direct impacts, the supporting infrastructure may have more substantial impacts than the actual bore infrastructure. This may include impacts on threatened ecological communities, flora and fauna, Aboriginal heritage and cultural sites, non-Aboriginal heritage sites, acid sulphate soils and sensitive receptors for noise and waterways.

Jacobs (2015d) provided a multi-criteria assessment of all potential groundwater options considering the impact on GDEs at the proposed depth, the likelihood of increasing acid sulfate soil risk and known heritage issues. The results of the assessment for the Woodburn, Newrybar, Tyagarah and Alstonville options are summarised in Table 20. Further assessment will be required, however significant impacts can be avoided through site selection.

Table 20: Environmental and heritage assessment outcomes – groundwater options

Criteria	Woodburn	Newrybar	Tyagarah	Alstonville
Impact on GDEs at the proposed depth	Few GDEs but impacts manageable	Some GDE impacts, management unknown	Several GDEs, management difficult	Some GDE impacts, management unknown
Likelihood of increasing acid sulfate (ASS) soil risk	Medium probability of ASS <3m. Receptors >300m distance. Management required	Low probability of ASS <3m. Receptors >500m distance. Minor management required	Medium probability of ASS <3m. Receptors >300m distance. Management required	No known ASS to occur, no nearby receptors, no management required
Known heritage issues	No listed heritage sites, no management required	Known heritage in source area but impacts can be managed	No listed heritage sites, no management required	Some heritage areas but not adjacent to bore sites, no management required

Source: Jacobs (2015d)

The groundwater options are discussed in the following sections.

10.3 Option 3-1: Woodburn

There is an existing bore supply at Woodburn consisting of three bores (No. 1, No. 2 and No. 3) in the coastal sands aquifer which augments the supply to the Lower Richmond River supply area (Woodburn, Broadwater, Evans Head and Coraki) during dry periods (Section 3). In 2007/08 the borefield produced 46 ML. The existing borefield has a licence entitlement of 726 ML/a. Bores 1 and 2 have been compromised by the development of the Pacific Highway and are no longer used. Bore 3 has been replaced and is used as an emergency supply (introduced when RCD is at 60% full) in the current RCC supply regime.

Based on the findings of the initial groundwater investigations, desktop investigations were undertaken for a potential new borefield scheme at Woodburn. Jacobs (2017d) provided preliminary aquifer modelling and determined borefield production estimates for the coastal sands aquifer in the Woodburn area and found that the Woodburn aquifer is capable of supplying the 2060 annual day demand for the Lower Richmond River supply area. Water quality was determined to be suitable for drinking water if appropriate treatment is implemented (iron and manganese removal) (Jacobs, 2018a). A concept design and capital cost estimate have been prepared for the scheme (Jacobs, 2018b).

The concept design for the Woodburn borefield includes four production bores (existing No. 3 and new No. 4, No. 5 and No. 6) which would operate 22 hours per day at 16 L/s providing a maximum borefield capacity of 5.0 ML/d. Bore pumps would be designed to operate with a 10 m maximum draw down in each bore (Jacobs, 2018b).

Treated water would be transferred to the existing Lower Richmond River supply system. The groundwater WTP would be located on the site of the existing chlorination facility and have a daily production capacity of 5.0 ML/d (Figure 14). The WTP would require the following treatment processes:

- Aeration unit with provision for pre-chlorination.
- Pre lime dosing for pH correction and alkalinity (if necessary) for reliable coagulation.
- Chemical coagulation with alum and flocculation.
- Upflow clarification to settle and remove floc (as waste sludge).
- Filtration of clarified water through multi-media gravity filter with filter air and water backwash.
- Collection of clarifier waste sludge and filter backwash water to enable recovery of washwater for blending.
- Thickening and disposal of sludge.
- UV disinfection designed for 4.0 log removal for Cryptosporidium.
- Post soda ash dosing for pH correction, and fluoridation.
- Chlorination to provide effective disinfection and a free chlorine residual to protect the treated water transfer system against recontamination.

If required ozonation and biologically activate carbon (BAC) filtration would be included between filtration and UV disinfection as a barrier to potential organic pollutant and taste and odour precursors.



Figure 14: Woodburn groundwater WTP inlet and layout

Source: Jacobs (2018b)

10.4 Option 3-2: Newrybar

Two options for groundwater supply at Newrybar have been identified (north and south) which may be combined to reduce capital costs. Concept designs and cost estimates for the Newrybar groundwater scheme are provided in Jacobs (2020b). The groundwater supply from these two sources would be combined with existing supplies to the Knockrow reservoir.

Based on the results from test bores in the vicinity, the total dissolved solids (TDS) of the water drawn from continuous operation of bores at the Newrybar south site would be around 5,000 mg/L resulting in the need for brackish water desalination of the groundwater to produce drinking water quality. The groundwater would require conventional treatment to clarify the water before reverse osmosis (RO) to remove salinity (Jacobs, 2020b). The method and costs associated with waste disposal from this treatment process have not yet been determined.

Up to 5 production bores and a standby bore each capable of producing 15 L/s (75 L/s in total) for a period of 22 hrs/day resulting in a daily brackish groundwater production of capacity of 6.0 ML/d from the south borefield. The estimated final output is 5.4 ML/d of drinking water discharged to the Knockrow reservoir and 0.6 ML/d of brine. A supply of low TDS groundwater is proposed in north Newrybar from 5 production bores and one standby bore each capable of producing 5 L/s (25 L/s in total) for 22 hrs/day with a daily production capacity of 2.0 ML/d. It is proposed to combine the two borefield supplies with treatment at a single WTP. The integrated Newrybar groundwater scheme would require a WTP comprised of a conventional clarifier and RO.

10.5 Option 3-3: Tyagarah

Concept designs and cost estimates for the Tyagarah groundwater scheme are provided in Jacobs (2020b). There are two schemes which have been identified for utilising the groundwater produced at Tyagarah. Scheme 1 would transfer the treated groundwater to the Ocean Shores reservoirs (Saddle Road, Yamble and Warrambool) and Rous retail customers and Scheme 2 to the St Helena reservoir.

Jacobs (2020b) considered that the schemes could be constructed in two stages:

- Scheme 1:
 - Stage 1 - supply 6.4 ML/d of treated water from four production bores and one standby bore. Groundwater treated at a new WTP with the capacity to treat both stages.
 - Stage 2 - construction of an extra bore to supply 7.5 ML/d.
- Scheme 2:
 - Stage 1 - supply 10.8 ML/d of treated water from six production bores and one standby bore. Groundwater treated at a new WTP with the capacity to treat both stages.
 - Stage 2 - construction of an extra bore to supply 12.5 ML/d.

The option considered in this report includes initial construction of Scheme 1, Stage 1 with future expansion to include Scheme 2 with an ultimate groundwater supply of 12.5 ML/d. The future scheme would supply all of the Byron Shire apart from Bangalow with treated water distributed to the Ocean Shores reservoirs, retail customers along the Brunswick 300 trunk main and St Helena reservoir (servicing Byron Bay and Rous retail customers).

10.6 Option 3-4: Alstonville

The existing Alstonville borefield consists of 2 production bores, one at Lumley Park and one at Converys Lane which extract groundwater from fractured basalt to augment supply during dry periods (Section 3). The Converys Lane bore (introduced when RCD is at 60% full) and Alstonville plateau bores (introduced when RCD is at 30% full), are included in the current RCC supply regime. This option proposes that the bore at Lumley Park be retained while the bore at Converys Lane would be replaced with a new bore adjacent to the existing bore. Concept designs and cost estimates for the Alstonville groundwater scheme are provided in Jacobs (2020b). The two bores would operate 22 hours per day and a minimum of 320 days per year. This option proposes the construction of a standby bore at Elvery Lane to provide operational security. The existing water licence for the Converys Lane bore can be transferred to the replacement bore providing it is constructed within 20m of the existing bore. A new WTP and a transfer pump station and pipeline to transfer the groundwater to the Wollongbar reservoir would be required. The estimated long-term capacity of the two bores is 4.5 ML/d.

Jacobs (2020b) also considered the option of utilising the existing Marom Creek WTP (refer Section 8.13) to treat groundwater from the Alstonville borefield. The existing Marom Creek surface water supply would be blended with the groundwater supply. Cost savings would be achieved by utilising the existing Marom Creek WTP and the existing pipeline from the Marom Creek WTP to Wollongbar reservoir (not presently used) to transfer groundwater to the WTP. A new pipeline from the Marom Creek WTP to Wollongbar reservoir would be required.

The option considered in this report is the new bores at Wollongbar and Alstonville, with groundwater transferred to the Marom Creek WTP with distribution to customers from the Wollongbar reservoir.

10.7 Summary of Groundwater Options

10.7.1 Borefield and WTP capacity

A summary of the four groundwater options considered in this report is given in Table 21.

Table 21: Summary of groundwater options

Borefield	Groundwater inflow to WTP (ML/d)	WTP capacity (ML/d)	Treatment process
Woodburn	5.0	5.0	Conventional
Integrated Newrybar	8.0	7.2	Conventional and RO
Tyagarah (Scheme 1, Stage 1)	7.5	6.4	Conventional
Tyagarah (Scheme 2)	13.9	12.5	Conventional
Alstonville	4.5	4.0	Conventional

Source: adapted from Jacobs (2020b)

10.7.2 Secure yield

The secure yield of the groundwater schemes has been assessed using the RCC Bulk Water Supply Security Model (Engeny, 2021) with results shown in Table 22. The secure yield assessment assumed the groundwater sources would be operated once RCD reaches 95% full. The 2020, 2030 and 2060 secure yield of the groundwater options is shown in Figure 15, using a similar approach as for the current system (Section 6.2).

Table 22: Increase in system secure yield with groundwater schemes

Option	Transfer capacity (ML/d)	Historic climate (5/10/10)	Reduction factor ¹	1°C climate warming
Woodburn	4.0	800	0.932	745
Integrated Newrybar	Stage 1: 6.0 Stage 2: 1.2	2,100		1,956
Tyagarah (Stage 1)	7.5	2,050		1,910
Tyagarah (Stage 2)	5.0	3,950		3,679
Alstonville	3.5	1,050		978

Source: Engeny (2021)

1. Reduction factor was only calculated for the combined groundwater schemes and has been applied to each scheme.

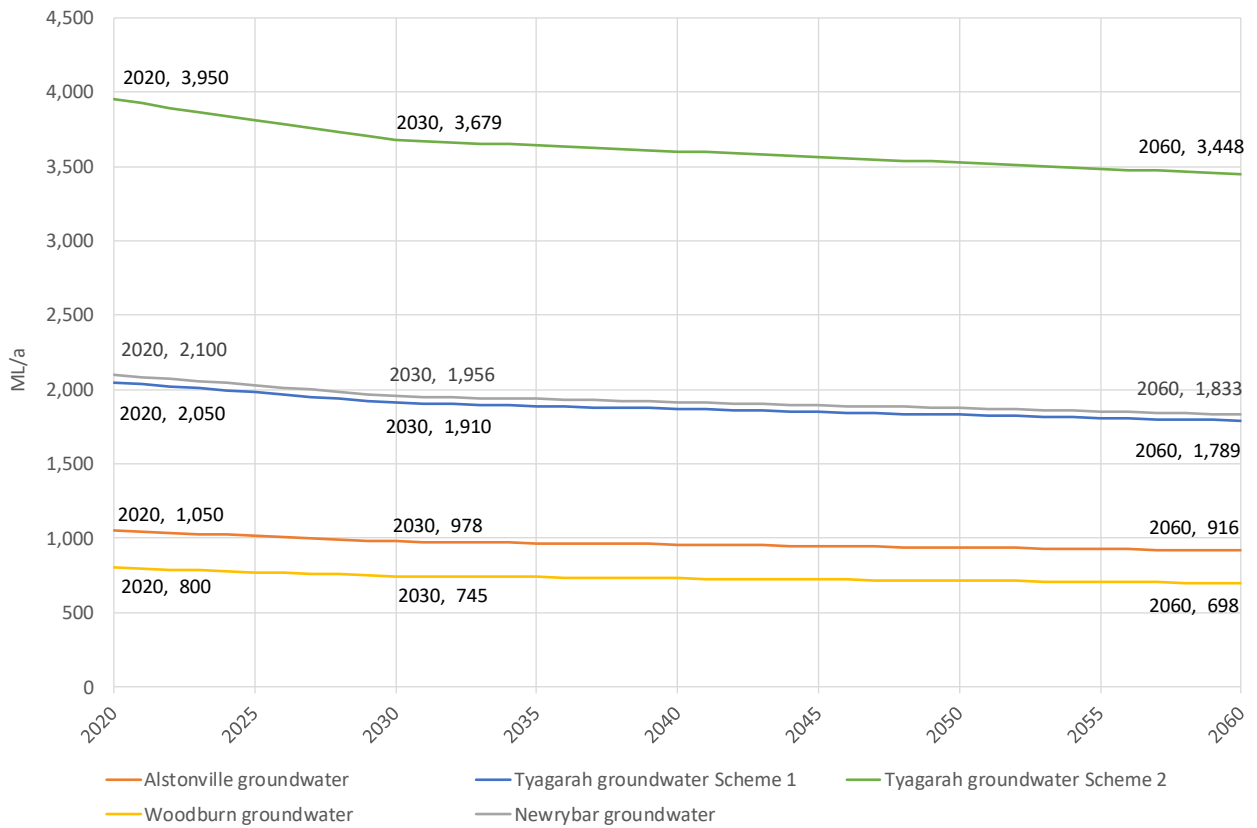


Figure 15: Secure yield estimates – groundwater options

10.7.3 Cost estimates

Preliminary cost estimates for each groundwater option have been provided by Jacobs (2020b) as detailed in Table 23. NPV calculations are included in Appendix 1.

Table 23: Groundwater preliminary cost estimate

Component	Woodburn (2020 \$)	Integrated Newrybar (2020 \$)	Tyagarah (Scheme 1, Stage 1) (2020 \$)	Tyagarah (Scheme 2) (2020 \$) ¹	Alstonville (2020 \$)
Pre-construction costs	\$3,812,000	\$14,535,000	\$11,355,000	\$2,930,000	\$7,612,000
Construction costs	\$31,685,000	\$47,160,000	\$37,250,000	\$25,206,250	\$17,344,000
Integration costs	\$985,000	\$1,460,000	\$1,175,000	\$635,000	\$985,000
Total initial capital cost	\$36,482,000	\$63,155,000	\$50,852,000	\$30,462,250	\$25,941,000
Renewal costs (80 years)	\$67,928,077	\$79,534,935	\$96,773,395	\$127,695,494	\$67,433,077
Maintenance costs (80 years)	\$13,104,300	\$18,984,800	\$9,242,510	\$23,261,600	\$4,546,510
Operating costs (80 years)	\$52,288,000	\$113,316,000	\$72,420,960	\$108,479,120	\$45,843,200
Whole-of-life (80 years)	\$169,802,377	\$274,990,195	\$229,288,865	\$277,659,139	\$143,763,787
NPV (80 years @ 5%)	\$55,817,346	\$98,566,607	\$76,008,100	\$70,231,337	\$44,109,829
NPV (40 years @ 5%)	\$51,230,292	\$91,091,988	\$69,888,062	\$61,558,652	\$40,065,265
Yield benefit (2020 – 2060) ML/a	698	1,883	1,789	3,448	916
NPV/ML secure yield (40 years)	\$73,396	\$49,696	\$39,065	\$38,213	\$43,739

1. RCC has adjusted costs presented in Jacobs (2020b) to allow for the staged construction of the Tyagarah scheme. The ultimate scheme would provide a yield benefit of 3,448 ML/a with costs from both stages.

10.8 Power Consumption

The total estimated power consumption for the groundwater options is shown in the following table.

Table 24: Power consumption – groundwater options

Component	Ultimate production (ML/a)	Consumption (kWhr/kL)	Energy use (MWhr/a)
Alstonville	1,280	0.52	666
Woodburn groundwater	1,600	0.30	1,929
Woodburn treatment		0.91	
Tyagarah Scheme 1 groundwater	2,048	0.70	3,288
Tyagarah Scheme 1 treatment		0.91	
Tyagarah Scheme 2 groundwater	4,000	0.70	6,422
Tyagarah Scheme 2 treatment		0.91	
Newrybar groundwater	2,304	0.40	5,095
Newrybar treatment		1.82	

Source: groundwater - MWH (2014), treatment - CWT (2018), additional power consumption allowed for RO at Newrybar

10.9 Data Gaps and Key Risks

To progress the development of these four groundwater options, the items outlined in Table 25 should be addressed by RCC. These would be undertaken as part of planning stages and would be completed prior to a decision to proceed with the planning and approvals for the groundwater options.

Table 25: Data gaps and project risks – groundwater

Item	Discussion	Action required
Concept development	<ul style="list-style-type: none"> Further bore testing to confirm the sustainable yields, impacts on other water users within the aquifers and water quality. 	Bore testing
Wastewater disposal	<ul style="list-style-type: none"> Development of options for disposal of brine waste from Newrybar RO plant. 	Concept development
Concept design	<ul style="list-style-type: none"> Concept designs for Newrybar, Tyagarah and Alstonville groundwater options (bores, collector systems, treatment and integration with existing network) are required. 	Concept designs
Detailed design	<ul style="list-style-type: none"> Detailed design of all infrastructure. 	Detailed design phase
Cost estimates	<ul style="list-style-type: none"> Review of total project cost estimates. 	Detailed design phase
Environmental investigation	<ul style="list-style-type: none"> Detailed investigation of the environmental impacts of bore construction and associated infrastructure. 	Specialist studies
Land acquisition	<ul style="list-style-type: none"> Assessment of property acquisition costs (land and administration charges) under the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>. Subsequent purchase of land. 	Land valuation and acquisition

Item	Discussion	Action required
Community engagement	<ul style="list-style-type: none"> Development and implementation of a community engagement strategy is required. 	RCC has commenced consultation activities as part of the assessment of supply scenarios (Section 14). An ongoing engagement strategy will be developed as part of the outputs of the Future Water Project 2060.

10.10 Recommendation

Groundwater supplies at Woodburn, Tyagarah, Newrybar and Alstonville servicing the key RCC demand centres are technically viable and would provide significant yield benefit when implemented in stages. Staging should consider the benefits of each option as follows:

1. Alstonville (3.5 ML/d) – existing groundwater entitlements with treatment available as part of the Marom Creek WTP option. The existing operating rules include groundwater from Converys Lane and Lumley Park (1.2 ML/d) implemented when RCD reaches 60% supply level.
2. Woodburn (5.0 ML/d) – existing groundwater entitlements, land and transfer infrastructure for bore 3 but requires a new conventional treatment facility along with new groundwater bores to meet demand requirements. The existing operating rules include groundwater from Woodburn implemented when RCD reaches 60% supply level although the bores are not currently operational.
3. Tyagarah (12.5 ML/d) – no existing entitlement and requires new conventional treatment facility and transfer infrastructure. The priority bore locations and hence staging would be determined following additional assessment of impacts on GDEs.
4. Newrybar (7.2 ML/d) – no existing entitlement and requires new conventional and RO treatment facility and transfer infrastructure.

11. OPTION 4: DESALINATION

Desalination is the process of removing salt and other minerals from water. Desalination of seawater provides an unlimited, climate independent and reliable new water supply. However, energy consumption is very high.

Temporary desalination plants are listed as a potential emergency supply options in the *Regional Water Supply Drought Management Plan* (Section 3).

11.1 Site and Treatment Options

Detailed investigations into desalination options were undertaken by GANDEN (2020). The investigations included a review of previous studies, confirmation of plant capacity and identification and assessment of potential locations of the plant considering network connectivity, power supply, social and environmental factors. Various desalination technologies, intake and outlet structures were considered. Single facilities of 5-10 ML/d capacity were considered to ensure economic viability.

The following three potential site locations were identified for the assessment based on previous information and in consultation with RCC:

- Byron Bay (adjacent to the existing West Byron wastewater treatment plant (WWTP)).
- Lennox Head (adjacent to the existing WWTP).
- South Ballina.

These locations were selected based on the following considerations:

- Proximity to seawater sources.
- Water supply demand in areas of large population growth or existing high population to justify the capital expenditure.
- Proximity of electrical infrastructure and water reticulation networks that can support the proposed facilities.

The opportunities, risks and constraints identified for each location in the desktop study are outlined in Table 26.

Table 26: Risk and opportunities of different desalination plant locations

Location	Opportunities	Risks and Constraints
Lennox Head	<p>Location of large population growth.</p> <p>Likely good access to land adjacent to existing WWTP.</p> <p>Co-location of existing WWTP ocean outfall.</p> <p>Simple to connect to power.</p>	<p>Expensive to connect intake underneath Skennars Head properties.</p> <p>Connection to East Ballina reservoirs would be required as current population does not warrant a new 5 – 10 ML/d plant.</p> <p>Emigrant Creek WTP and Knockrow reservoir already provide more supply redundancy than other LGAs (e.g. Byron Shire).</p>

Location	Opportunities	Risks and Constraints
South Ballina	<p>Large baseline population in Ballina Shire.</p> <p>Cheaper land compared to alternative locations.</p> <p>5 ML/d would serve current population and 10 ML/d would serve Ballina, Skennars Head and Lennox Head.</p>	<p>Expensive to connect power and treated water pipeline across the Richmond River, adding \$5.0 - \$10 million using horizontally direct drilling.</p> <p>Would require connection to Skennars Head and Lennox Head to justify 10 ML/d capacity.</p> <p>Location at risk of inundation and being isolated during floods.</p> <p>Intake/outfall in area of high erodibility.</p> <p>Water quality risk due to flood waters creating sediment plume at the Richmond River mouth.</p> <p>Additional expense to extend intake/outfall past observed Richmond River sediment plume.</p>
Byron Bay	<p>High demand area with high population growth.</p> <p>RCC may operate the facility to deal with additional potable demand associated with seasonal events and tourism influx.</p> <p>Simple connection to existing electrical infrastructure and potable water mains.</p> <p>No perceived risk of flood inundation.</p>	<p>Potentially expensive building envelope.</p> <p>Tyagarah Nature Reserve runs along coast and is highly sensitive to erosion.</p> <p>Community perception would need to be managed carefully.</p>

Source: GANDEN (2020)

Based on the risks and opportunities identified in Table 26, Byron Bay was chosen as the preferred location as it located in an area with large projected growth with the future projected demand of the wider area (Byron Bay, Suffolk Park, Ocean Shores, Brunswick Heads and Bangalow) predicted to grow to 11 ML/d by 2036 making it a suitable area to be served by a 10 ML/d desalination plant (Figure 16). Furthermore, the site is located close to power supplies and the existing water reticulation network (GANDEN, 2020).

Multi-criteria analysis was undertaken to compare a range of desalination technologies and a range of seawater intake technologies able meet the following three mandatory criteria:

- Achieves water quality objectives (i.e. will meet the Australian Drinking Water Guidelines).
- Possible to implement in Rous regional supply area.
- Practical to implement in Rous regional supply area.

The MCA assessed the technologies on their whole life cost, proof of the technology, resourcing, support and process resilience (considering environmental changes such as beach erosion, salinity and turbidity resulting from heavy rain) and their value for money. Seawater Reverse Osmosis (SWRO) was chosen over Electrodialysis Reversal as the preferred desalination technology. Offshore Open Intake was chosen over a Subsurface Ranney Collector as the preferred seawater intake technology. Other desalination (nanofiltration, Capacitive Deionisation/ Membrane assisted Capacitive Deionisation, Ion exchange and thermal and solar distillation) and seawater intake technologies were assessed by GANDEN (2020) however they did not meet the mandatory criteria.



Figure 16: Proposed desalination plant location in Byron Bay

Source: GANDEN, 2020

A cost comparison was used to compare conventional pre-treatment (coagulation-flocculation-media filtration) and microfiltration (MF) and ultrafiltration (UF) systems. MF/UF filtration was provisionally recommended by GANDEN (2020) however the report acknowledges this preference is based on limited data on feedwater quality.

11.2 Preliminary Concept Design

A concept design layout and cost estimates were provided by GANDEN (2020) for the preferred option which includes a seawater desalination plant with a production capacity of 10 ML/d. The plant would be constructed in stages of 5 ML/d initially followed by two incremental increases of 2.5 ML/d to achieve the ultimate capacity of 10 ML/d.

The preliminary concept design was developed by GANDEN using Suez Water Technologies & Solutions' 'skid-based' technology to allow for a staged construction approach. The concept design comprises the following components:

- Ocean offshore seawater intake system.
- Pre-treatment screens.
- Chemical dosing.
- UF/MF pre-treatment filtration.
- 4 x 2.5 ML/d scalable 'SeaPAK' (A Suez Water product) trains.
- High pressure pumps, membrane pressure vessels and energy recovery devices.

- Post treatment systems, including pH adjustment and fluoridation requirements.
- Backwash wastewater settling tank, belt press and sludge disposal systems.
- Brine outfall systems.
- Building and amenities.

The concept design for the seawater intake and waste outfall has not been finalised as these are dependent on the final site selection. However, as they would be located in the Cape Byron Marine Park, potential impacts and approval requirements would need to be addressed. The intake would most likely comprise a directionally drilled pipeline with a dual intake/outfall system.

Chemicals such as sodium hypochlorite, anti-scalant, biocide, sodium bisulphite, sulphuric acid, remineralisation chemicals and 'clean in place' solution are required for dosing and would be stored in either 20 L drums, itemised bulk containers or small tanks and directly dosed from the storage device. Disinfection of the treated water would be undertaken at the treated water reservoir/chlorine contact tank. Concentrate disposal would be achieved by depositing the reject concentrated brine water through the outfall system and hence treatment chemicals would be selected to allow for environmental discharge (to be confirmed during detailed environmental assessment and monitoring). Pre-filtration of the intake water would be achieved using membrane ultrafiltration. Cartridge filters would be situated between the UF units and RO membranes to act as a second line of defence in case of UF filtration failure.

The SWRO membranes would be fixed inside fiberglass reinforced plastic pressure vessels (normally between 5 and 7 membranes per vessel). Multiple pressure vessels would be located on a rack, called "arrays" or modules. The RO permeate would then be transferred to post treatment and the concentrate to disposal via an ocean outfall. The feed water would pass through the RO membranes once (i.e. a one-pass system) to produce approximately 40% RO permeate and 60% concentrate. Approximately 252 membranes and 36 RO pressure vessels would be required for each 2.5 ML/d train.

The desalination plant concept design is shown in Figure 17. The concept design includes future filtration and RO membranes which would be installed when the capacity of the plant is required to be increased.

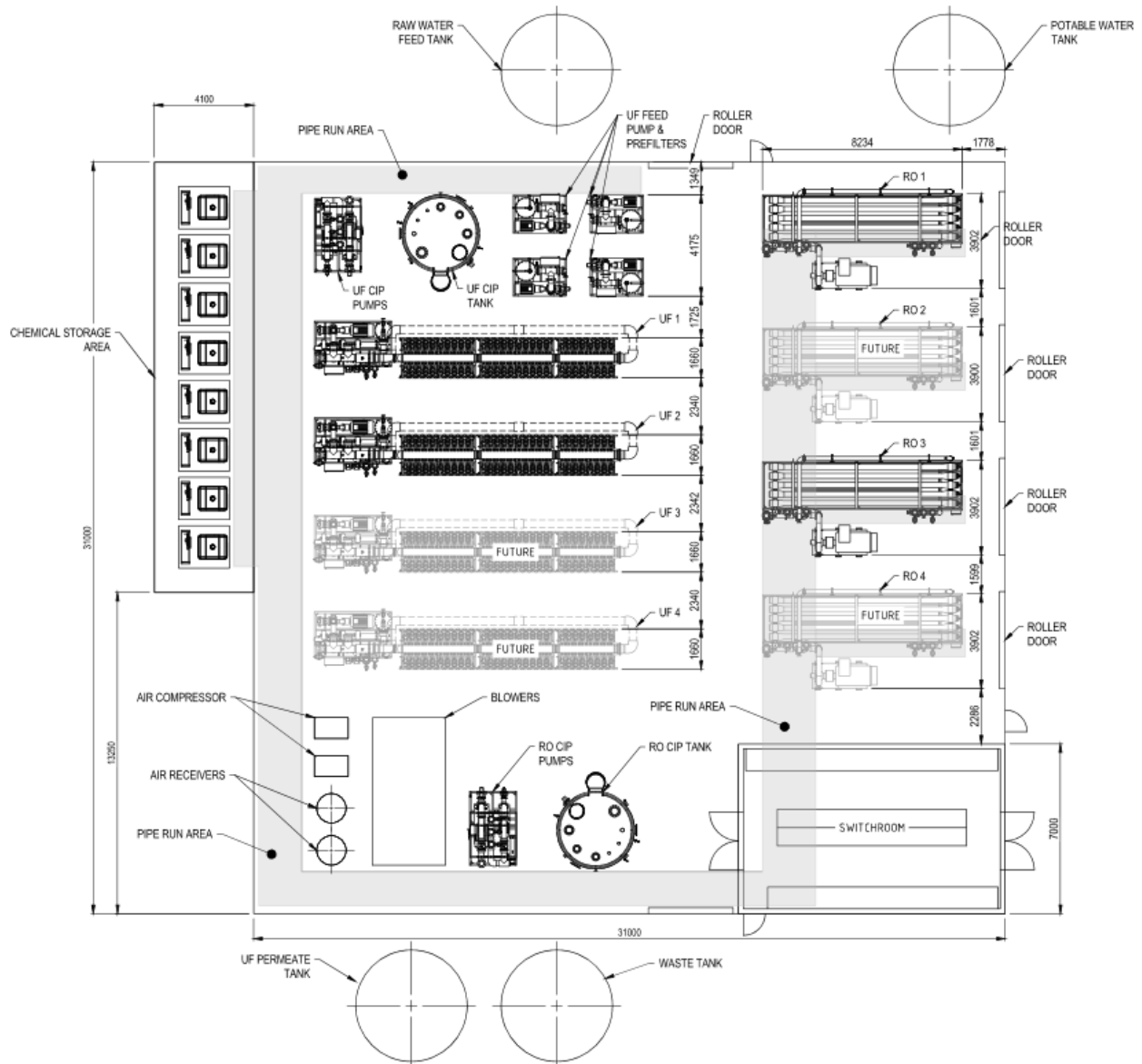


Figure 17: Concept design plant layout

Source: GANDEN, 2020

11.3 Environmental and Social Considerations

Desalination schemes that have been implemented in Australia have generally been met with significant community resistance and criticism (GeoLink, 2011, GANDEN, 2020). GeoLink (2011) suggested that for a desalination scheme in the Rous supply area to be accepted by the community, a multi-criteria assessment that is effectively communicated to the community would be necessary.

A desalination option was included in the IWP (MWH, 2014) which identified desalination as a potential new source to be considered as a safeguard should other sources prove unviable and insufficient. The IWP included desalination as a future component in a scenario in combination with groundwater sources to be implemented when demand exceeded the additional supply provided by the groundwater sources.

Based on a review of existing literature GANDEN (2020) identified and documented the following environmental challenges and potential impediments associated with developing desalination facilities:

- Potential ecological impacts associated with seawater intakes.
- Potential environmental and ecological impacts associated with brine discharge.

- Potential environmental impacts on coastal land.
- Native title considerations.
- Energy consumption.

An environmental impact assessment would be required to assess environmental conditions and establish design parameters. A Marine Parks permit would be required to construct an intake/outfall pipeline at the Byron Bay site (permissibility of this activity has been assumed).

The *Northern Rivers Regional Bulk Water Supply Study* (Hydrosphere Consulting, 2013) found that the incorporation of marine water desalination would be an attractive source augmentation option for a regional scheme (including interconnection with the Tweed Bray Park system) as this is easily scalable to match demand and is independent of climate, thus providing a highly secure water supply. Desalination provides climate independence that is currently missing from the region's water supplies. Desalination schemes have been successfully developed elsewhere and improvements in technology are likely to improve the attractiveness in future.

11.4 Secure yield

The secure yield of the desalination option has been assessed using the RCC Bulk Water Supply Security Model (Engeny, 2021) with results shown in Table 27.

Table 27: Increase in system secure yield with desalination

Option	Historic climate (5/10/10)	Reduction factor ¹	1°C climate warming
Desalination (10 ML/d)	1,550	1.0	1,550

Source: Engeny (2021)

1. Desalination is independent of climate.

11.5 Cost Estimates

The capital cost for the proposed plant was developed by GANDEN (2020) by benchmarking against a desalination plant in Agnes Waters as the most representative example of a similar sized desalination project executed in Australia (Table 28). NPV calculations are included in Appendix 1.

Table 28: Desalination preliminary cost estimate

Component	Cost Estimate (2020 \$)
Stage 1 – 5 ML/d capital cost	\$47,000,000
Stage 2 – 2 x 2.5 ML/d capital cost	\$7,000,000
Renewal costs (80 years)	\$36,794,547
Maintenance costs (80 years)	\$20,765,000
Operating costs (80 years)	\$103,138,940
Whole-of-life (80 years)	\$214,698,487
NPV (80 years @ 5%)	\$84,662,855
NPV (40 years @ 5%)	\$78,991,236
Yield benefit (2020 – 2060) ML/a	1,550
NPV/ML secure yield (40 years)	\$50,962

11.6 Power Consumption

The total estimated power consumption for the desalination options is shown in the following table.

Table 29: Power consumption – dam options

Component	Ultimate production (ML/a)	Consumption (kWhr/kL)	Energy use (MWhr/a)
Lennox Head or Byron Bay (10 ML/d)	3,650	4.00	14,600

Source: GANDEN (2020)

11.7 Data Gaps and Key Risks

To progress the development of Byron Bay desalination option, the items outlined in Table 30 should be addressed by RCC. These would be undertaken as part of planning stages and would be completed prior to a decision to proceed with the planning and approvals for the desalination options.

Table 30: Data gaps and project risks – Byron Bay desalination

Item	Discussion	Action required
Location	<ul style="list-style-type: none"> Further investigation is required to confirm the most suitable plant location including further environmental assessment. 	Detailed design phase
Integration	<ul style="list-style-type: none"> Further assessment of network integration and electrical headworks is required. 	Detailed design phase
Cost estimates	<ul style="list-style-type: none"> Review of total project cost estimates. 	Detailed design phase
Environmental investigation	<ul style="list-style-type: none"> Investigation of the environmental impacts 	Specialist studies
Marine Park impacts	<ul style="list-style-type: none"> Investigation and consultation regarding impacts on Cape Byron Marine Park and approvals required. 	Specialist studies
Land acquisition	<ul style="list-style-type: none"> Assessment of property acquisition costs (land and administration charges) under the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>. Subsequent purchase of land. 	Land valuation and acquisition
Community engagement	<ul style="list-style-type: none"> Development and implementation of a community engagement strategy is required. 	RCC has commenced consultation activities as part of the assessment of supply scenarios (Section 14). An ongoing engagement strategy will be developed as part of the outputs of the Future Water Project 2060.
Detailed design	<ul style="list-style-type: none"> Detailed design of all infrastructure. 	Detailed design phase

11.8 Recommendation

Desalination is a climate-independent source option that could be implemented at some key RCC demand centres and would provide significant yield benefit when implemented in stages. However, there is a large energy demand and potential environmental impacts associated with the seawater intake and wastewater disposal. Further detailed studies would be required prior to a decision to proceed with the desalination option but RCC considers that community opposition to desalination on the basis of high energy consumption is a significant risk.

Desalination would not be required as a primary source where a new groundwater source is implemented as only one of the sources would be required to meet the demand of each RCC supply area. Investment in a smaller groundwater scheme as well as a desalination option that services the same area would not be economically viable due to the duplication of assets. However, temporary desalination plants could be implemented as an emergency supply option if required.

12. OPTION 5: INDIRECT POTABLE REUSE

12.1 Scheme Options

Indirect potable reuse (IPR) involves reusing advanced treated wastewater effluent by transferring it to the surface water sources. The feasibility of IPR options was explored in a desktop study which considered opportunities to reuse wastewater effluent to reduce or replace potable water demand within the bulk supply area (CWT, 2020a). The study considered the following six WWTPs for their potential to provide effluent for water reuse:

- Ballina WWTP (BaSC).
- Lennox Head WWTP (BaSC).
- Alstonville WWTP (BaSC).
- Bangalow WWTP (BySC).
- South Lismore WWTP (LCC).
- East Lismore WWTP (LCC).

CWT (2020a) considered the current wastewater production, existing recycled water schemes and the location of each of the plants to consider how a reuse scheme could be configured. The potential quantity of source wastewater provided by each WWTP is provided in Table 31.

Table 31: Current wastewater production and recycling levels at WWTPs

Treatment plant	Annual wastewater production (ML)	Current water reuse scheme	Current reuse rate/amount	Additional wastewater yield
Ballina WWTP	2,400 – 3,400	Dual reticulation recycled water scheme	NA	1,300 ML/a ¹
Lennox Head WWTP	1,400 – 1,700		10-80%	
Alstonville WWTP	600 – 750	Local recycled water scheme	Average- 50% Dry weather periods- 70-90%	70-120 ML/a ²
Bangalow WWTP	140 - 170	Previous scheme- recycled water for bamboo crop irrigation	0% Previously 13%	70-110 ML/a ²
South Lismore WWTP	800 – 1,200	None	0	2,700 ML/a ¹
East Lismore WWTP	1,500 – 3,000		0	

Source: CWT (2020a), MWH (2014)

1. These values were assumed in the IWP process (MWH, 2014) but should be confirmed through further investigation.
2. These values have been estimated by CWT.

Based on the potential additional yield, Ballina and Lennox Head (combined) and South Lismore and East Lismore (combined) were considered to be potential options for providing source effluent. The treated effluent from these sources may be transferred to a potable water supply source (ECD or Wilson River Source) where it would be further treated in an advanced recycled water plant (ARWP) or the existing WWTPs could be upgraded and the effluent treated to a high standard before being transferred to the water supply source. Table 32 outlines the potentially feasible schemes for utilising these effluent sources to

provide additional potable water supply (CWT, 2020a). Cost estimates have not been prepared for the schemes.

Table 32: Summary of potentially feasible scheme options

Water source	Scheme description	Source(s)	Infrastructure cost
WRS	Treat in a common ARWP and pump recycled water to WRS	East Lismore and South Lismore WWTP	Medium
	Individual ARWP upgrades at existing WWTPs then pumping recycled water to WRS	South Lismore WWTP	Medium
		East Lismore WWTP	Medium
ECD	Treat in a common ARWP and pump recycled water to ECD	Ballina and Lennox Head WWTP	High
	Individual ARWP upgrades at existing WWTPs then pump recycled water to ECD	Ballina WWTP	Medium
		Lennox Head WWTP	Medium

Source: CWT (2020a)

CWT (2020a) identified the preferred Ballina Shire IPR scheme to be the transfer of treated effluent from Ballina WWTP to Lennox Head WWTP where the two effluent sources would be combined and further treated in an upgraded ARWP at Lennox Head before being transferred to ECD. This arrangement was considered to result in the lowest infrastructure cost for the most potable water replacement. Figure 18 shows the arrangement of the proposed Ballina IPR scheme. The treated effluent transferred to ECD would undergo further treatment at Emigrant Creek WTP. The impact on capacity and treatment processes at Emigrant Creek WTP due to the increased throughput has not yet been assessed.

CWT (2020a) concluded that the best Lismore IPR option would be to transfer effluent from East Lismore WWTP to South Lismore WWTP where the combined effluent would undergo advanced treatment before being transferred upstream of the WRS (Eltham gauge). The existing infrastructure would be used to transfer treated effluent from the WRS into RCD. Figure 19 shows the arrangement of the proposed Lismore IPR scheme. The treated effluent transferred to RCD from the WRS would undergo further treatment at Nightcap WTP. The impact on capacity and treatment processes at Nightcap WTP due to the increased throughput has not yet been assessed, although a planned augmentation of Nightcap WTP from 68 to 100 ML/day has been allowed for in 2034.

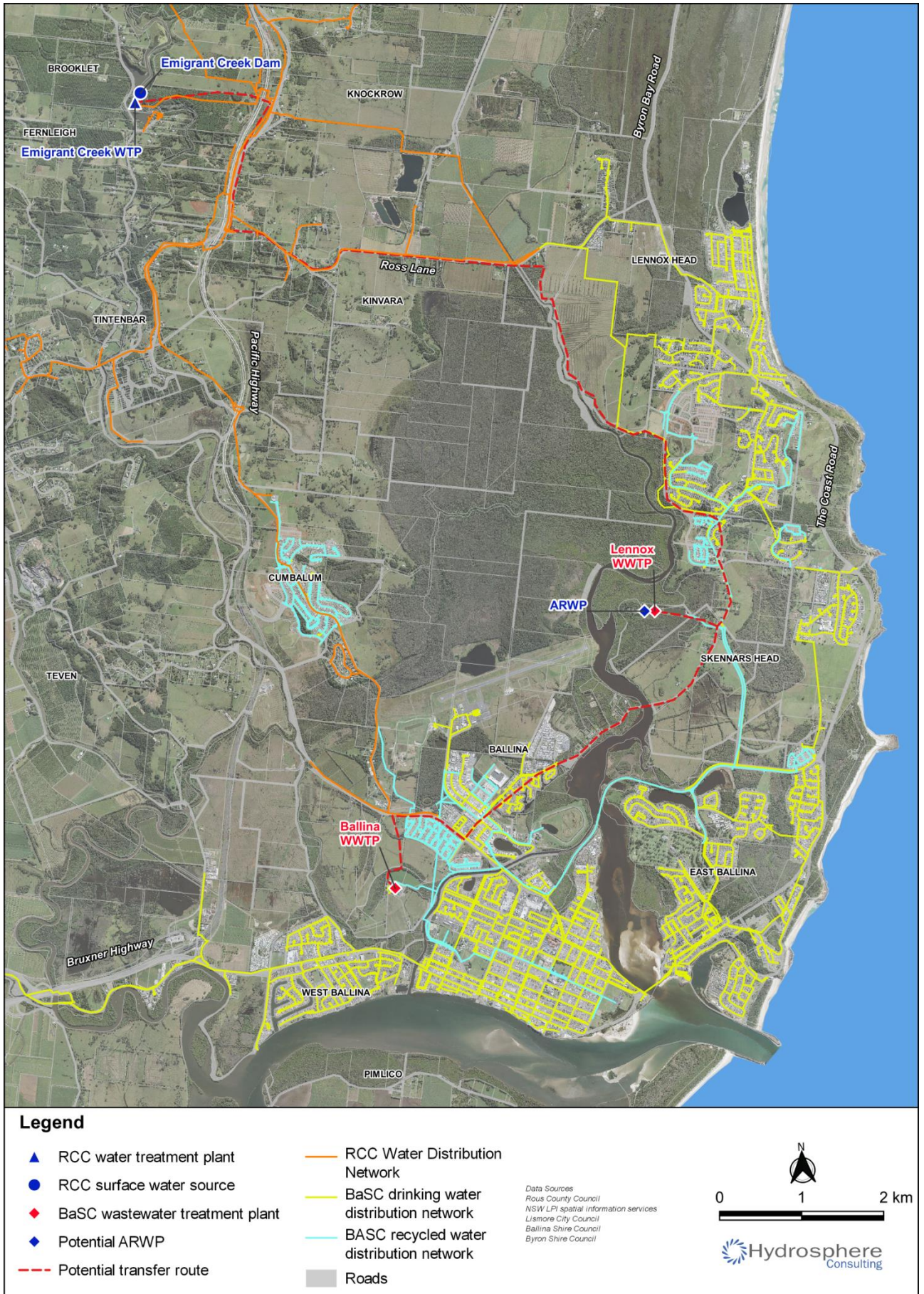


Figure 18: Potential Ballina IPR scheme

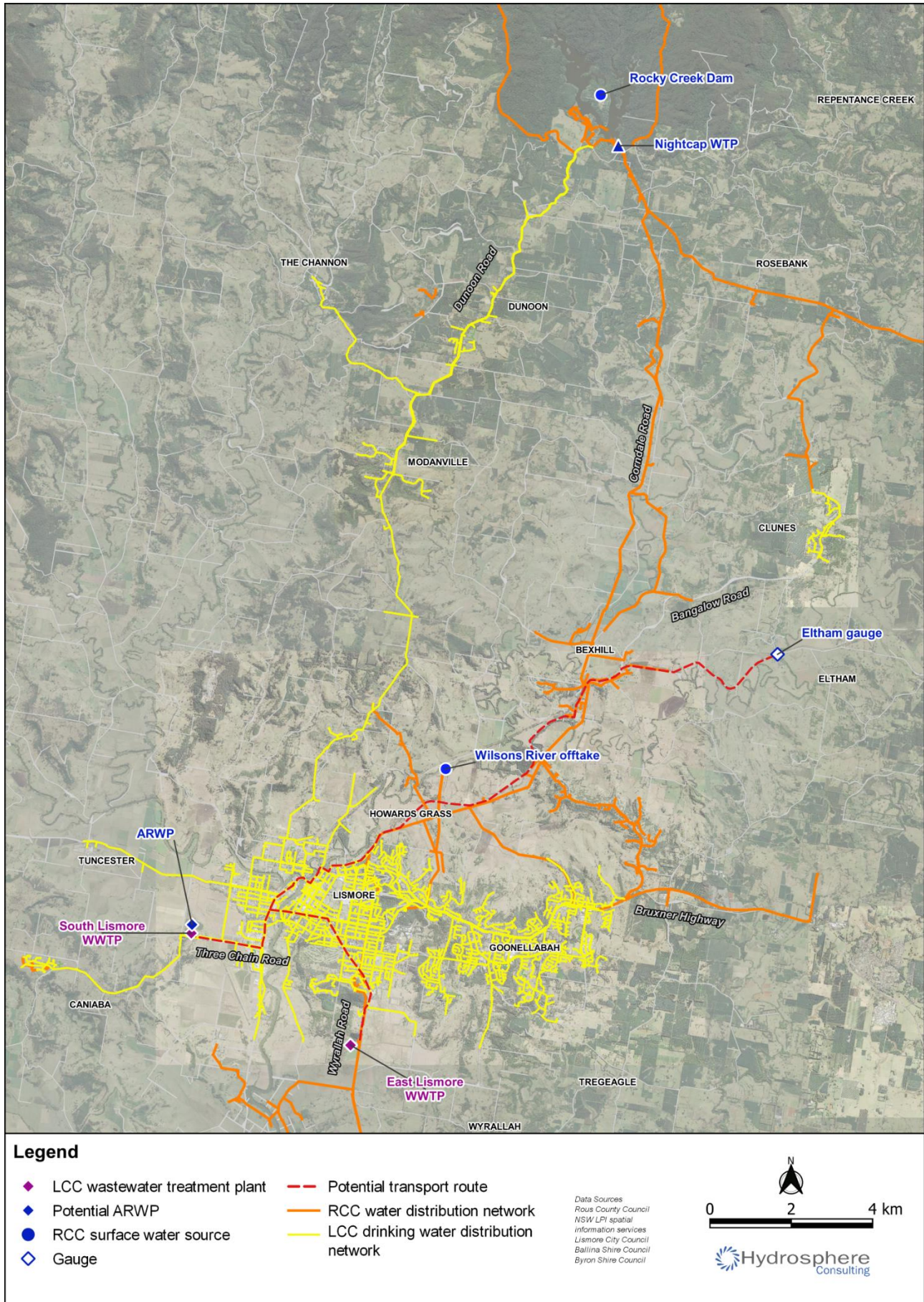


Figure 19: Potential Lismore IPR scheme

12.2 Secure Yield

The secure yield of the IPR options has been assessed using the RCC Bulk Water Supply Security Model (Engeny, 2021) with results shown in Table 33. The 2020, 2030 and 2060 secure yield of the IPR options is shown in Figure 20, using a similar approach as for the current system (Section 6.2).

Table 33: Increase in system secure yield with IPR

Option	Historic climate (5/10/10)	Reduction factor ¹	1°C climate warming
Lismore IPR scheme (5 ML/d to WRS)	750	0.969	727
Ballina IPR scheme (5 ML/d to ECD)	900		872
Combined schemes	1,350		1,308

Source: Engeny (2021)

- Reduction factor was only calculated for the combined IPR schemes and has been applied to each scheme.

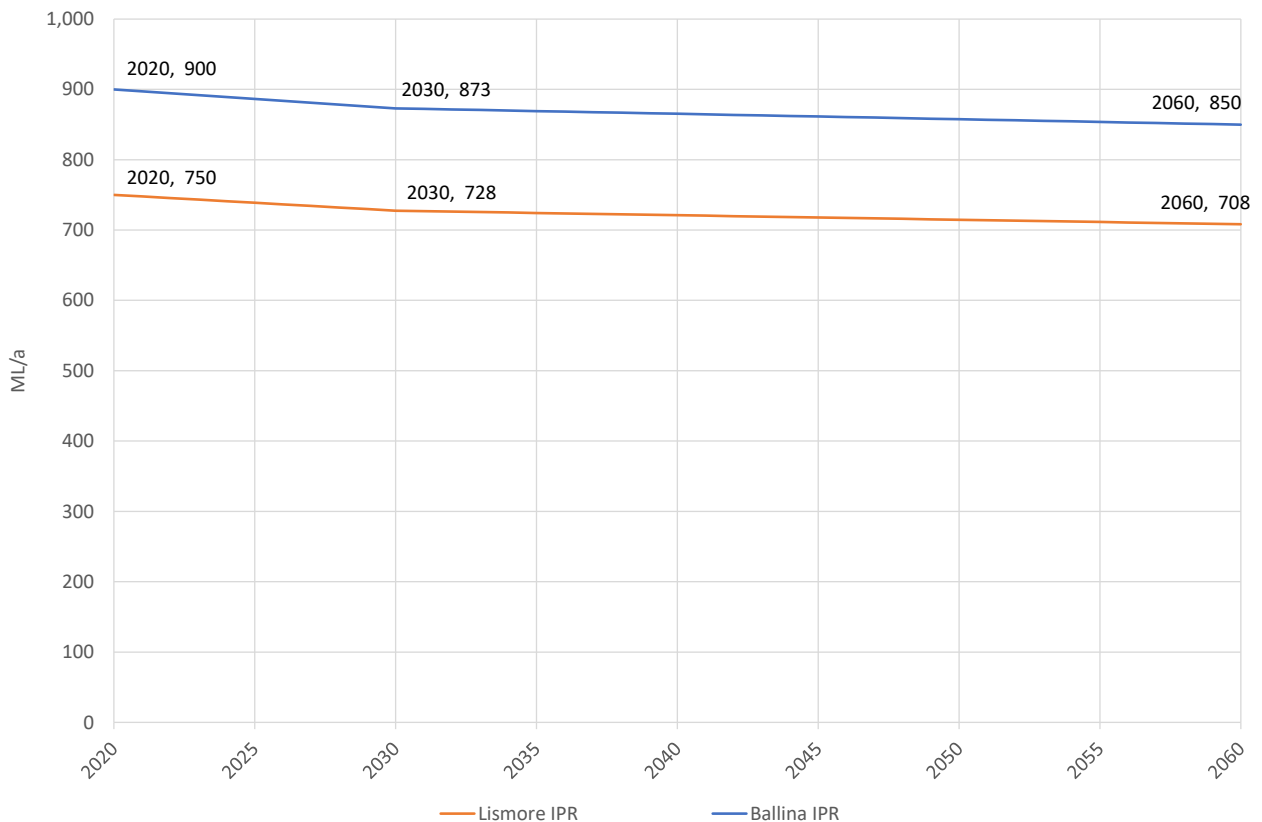


Figure 20: Secure yield estimates – IPR options

12.3 Cost Estimates

Detailed cost estimates are not available for the IPR options. The IWP (MWH (2014) assumed the capital cost for the Ballina and Lismore IPR schemes would be \$15.8 million and \$22.6 million respectively (escalated to 2020\$).

12.4 Power Consumption

The total estimated power consumption for the IPR schemes is shown in the following table (not including any additional treatment at the RCC-owned WTPs).

Table 34: Power consumption – IPR

Component		Consumption (kWhr/kL)	Energy use (kWhr/a)
<i>Ballina scheme</i>			
Treatment	<ul style="list-style-type: none"> Lennox Head WWTP advanced treatment 	N/A	3,212,687
Transfer	<ul style="list-style-type: none"> Ballina WWTP to Lennox Head WWTP 	N/A	994,873
	<ul style="list-style-type: none"> Lennox Head WWTP to ECD 	N/A	1,724,406
<i>Total – Ballina scheme (5 ML/d)</i>		3.25	5,931,966
<i>Lismore scheme</i>			
Treatment	<ul style="list-style-type: none"> South Lismore WWTP advanced treatment 	N/A	4,859,004
Transfer	<ul style="list-style-type: none"> East Lismore WWTP to South Lismore WWTP 	N/A	561,691
	<ul style="list-style-type: none"> South Lismore WWTP to WRS license point (Eltham gauge) 	N/A	932,064
<i>Total – Lismore scheme (5 ML/d)</i>		3.48	6,352,759

Source: CWT (2020b)

12.5 Data Gaps and Key Risks

To progress the development of the IPR options, the items outlined in Table 35 should be addressed by RCC. These would be undertaken as part of planning stages and would be completed prior to a decision to proceed with the planning and approvals for the IPR options.

Table 35: Data gaps and project risks – IPR

Item	Discussion	Action required
Concept development	<ul style="list-style-type: none"> Confirmation of wastewater volumes ARWP concepts Transfer system concepts 	Concept design
WTP requirements	<ul style="list-style-type: none"> Capacity and treatment upgrades for Emigrant Creek and Nightcap WTPs 	Concept design
Cost estimates	<ul style="list-style-type: none"> Development of total project cost estimates. The cost of the scheme is likely to be high. 	Concept design
Detailed design	<ul style="list-style-type: none"> Detailed design of all infrastructure. 	Detailed design
Environmental investigation	<ul style="list-style-type: none"> Investigation of the environmental impacts including the impact on water quality. 	Specialist studies

Item	Discussion	Action required
Regulator consultation	<ul style="list-style-type: none"> Investigation of compliance with the <i>Public Health Act, 2010</i> and ADWG. One of the critical considerations for this option is the approval by NSW Health that the scheme complies with public health requirements. 	RCC has commenced consultation with NSW Health.
Community engagement	<ul style="list-style-type: none"> Development and implementation of a community engagement strategy is required. 	RCC has commenced consultation activities as part of the assessment of supply scenarios (Section 14). An ongoing engagement strategy will be developed as part of the outputs of the Future Water Project 2060.

12.6 Recommendation

IPR can be used for all drinking and non-drinking purposes as well as replenishing natural water sources in drinking water catchments and does not require the construction and operation of a dedicated reticulation system to consumers. However, there are significant implementation and operational costs due to the treatment and transfer system requirements, challenges managing the concentrated waste streams, large energy demand and significant regulatory and planning requirements. The expected yield of the systems is also low when compared to other options. The safety of the water produced needs to be rigorously tested and validated and the approvals process would be lengthy, costly and uncertain. Broad community acceptance would be needed and this cannot be guaranteed. RCC considers that community opposition to IPR on the basis of public health concerns is a significant risk. For these reasons, IPR is not considered a viable short-term (less than ten years) solution for securing the region's long-term water supply. However it may be considered in future if these challenges can be overcome.

13. SOURCE AUGMENTATION SCENARIOS

13.1 Scenario Development

Despite the risks and data gaps identified in this report, Option 1 (Dunoon dam) and Option 3 (groundwater) are considered to be feasible and will be included in the source augmentation scenarios as the primary water source. There is currently detailed information available on these options to enable a robust comparison of source augmentation scenarios. Option 2 - Connection to the Marom Creek water supply has a low initial cost with minimal planning and development required. The WTP is an existing asset (requiring upgrade). However, asset ownership and future supply to Wardell will need to be resolved with BaSC. This option is considered to be worth pursuing to meet the short-term demand deficit.

Option 1 - implementation of Dunoon dam will have a lead time of approximately 9 years (to allow for additional investigations, approvals, construction and filling of the dam). Hence a scenario including Dunoon dam will require an interim solution to meet demand until approximately 2029. Option 3 - implementation of groundwater options will have a lead time of up to 6 years (to allow for additional investigations, approvals and construction). Groundwater options may be implemented in stages and the following have been considered in the development of staging for a groundwater scenario:

- Alstonville groundwater – optimises the Marom Creek WTP option and expands on an existing scheme and licences but has low yield.
- Woodburn groundwater – expands on an existing scheme, licences and land but has low yield and high cost. The Woodburn bore supply is also included as a dry period supply in the current operating regime.
- Tyagarah groundwater – relatively low-cost groundwater, with high yield and requires a new scheme. Potential impacts on GDEs need to be managed.
- Newrybar groundwater - relatively high-cost groundwater, high yield and requires a new scheme. Potential risks with wastewater disposal need to be addressed.

RCC considers that Option 4 (desalination) and Option 5 (IPR) are not as attractive due to operational constraints and expected stakeholder opposition:

- Option 4 - desalination has a high yield, is independent of climate but has a high cost. In addition, the energy consumption is very high due to the treatment processes required (2.5 times the energy consumption of a groundwater scheme with conventional treatment, based on data provided in MWH (2014)). Impacts on the Marine Park and approval requirements have not yet been determined.

The preferred desalination scheme would supply Byron Shire. Hence a groundwater scheme in Tyagarah and a desalination scheme in Byron cannot be included in the same scenario as local demand would be provided by only one option. Investment in a smaller groundwater scheme as well as a desalination option that services the same area would not be economically viable due to the duplication of assets.

As discussed in Section 11.3, a regional desalination facility with interconnection of the Tweed and Rous regional supplies may be considered in future. This provides additional options regarding service area, site location and capacity which may make this option more attractive.

- Option 5 - IPR schemes have a low yield benefit and a high cost. In addition, the energy consumption is very high due to the treatment and transfer processes required (2.5 times the energy consumption of a groundwater scheme with conventional treatment, not including additional potable water treatment). There is also a significant risk that the scheme would not meet public health requirements.

The preferred IPR scheme would supply Ballina Shire. Hence a desalination scheme in Ballina Shire cannot be included in the same scenario as local demand would be provided by only one option. The Lismore IPR scheme would not be required in addition to groundwater schemes that can supply the Lismore area.

Hence, desalination and IPR are not considered to be viable primary components of the source augmentation scenarios. However, RCC will continue to investigate these options as more data becomes available.

13.2 Source Augmentation Scenarios

This report compares two potential source augmentation scenarios to provide water security to 2060:

- Scenario 1 – Groundwater (with Marom Creek). Scenario 1 includes the connection of Marom Creek WTP to the Rous regional supply in the short-term with staged implementation of groundwater schemes and treatment plants until the required supply yield is achieved. The components of Scenario 1 are shown on Figure 21. The priority order of the medium to long-term groundwater schemes included in Scenario 1 may be varied in response to new information on each scheme.
- Scenario 2 – Dunoon dam. Scenario 2 includes the connection of Marom Creek WTP to the Rous regional supply in the short-term with construction of a new dam at Dunoon. Scenario 2A considers the 20 GL dam with potential future augmentation to 50 GL. Scenario 2B considers the 50 GL dam. Both scenarios include initial implementation of the Marom Creek and Alstonville groundwater options. The Dunoon dam scenarios include the upgrade of Nightcap WTP in 2034 from 70 ML/d to 100 ML/d. The components of Scenario 2 are shown on Figure 22.

If further investigations find that Marom Creek is not a viable option, the Woodburn groundwater scheme could be reinstated in the short-term.

The scenarios provide the required yield beyond 2060 (Section 13.3) and have been presented to enable comparison of the primary source options (Dunoon dam and groundwater). For Scenario 1, the staging of the groundwater schemes after the initial implementation of Marom Creek WTP, Alstonville and Woodburn groundwater sources can be varied in response to new information on yield, environmental impact and integration which may influence the prioritisation of these supplies from approximately 2032.

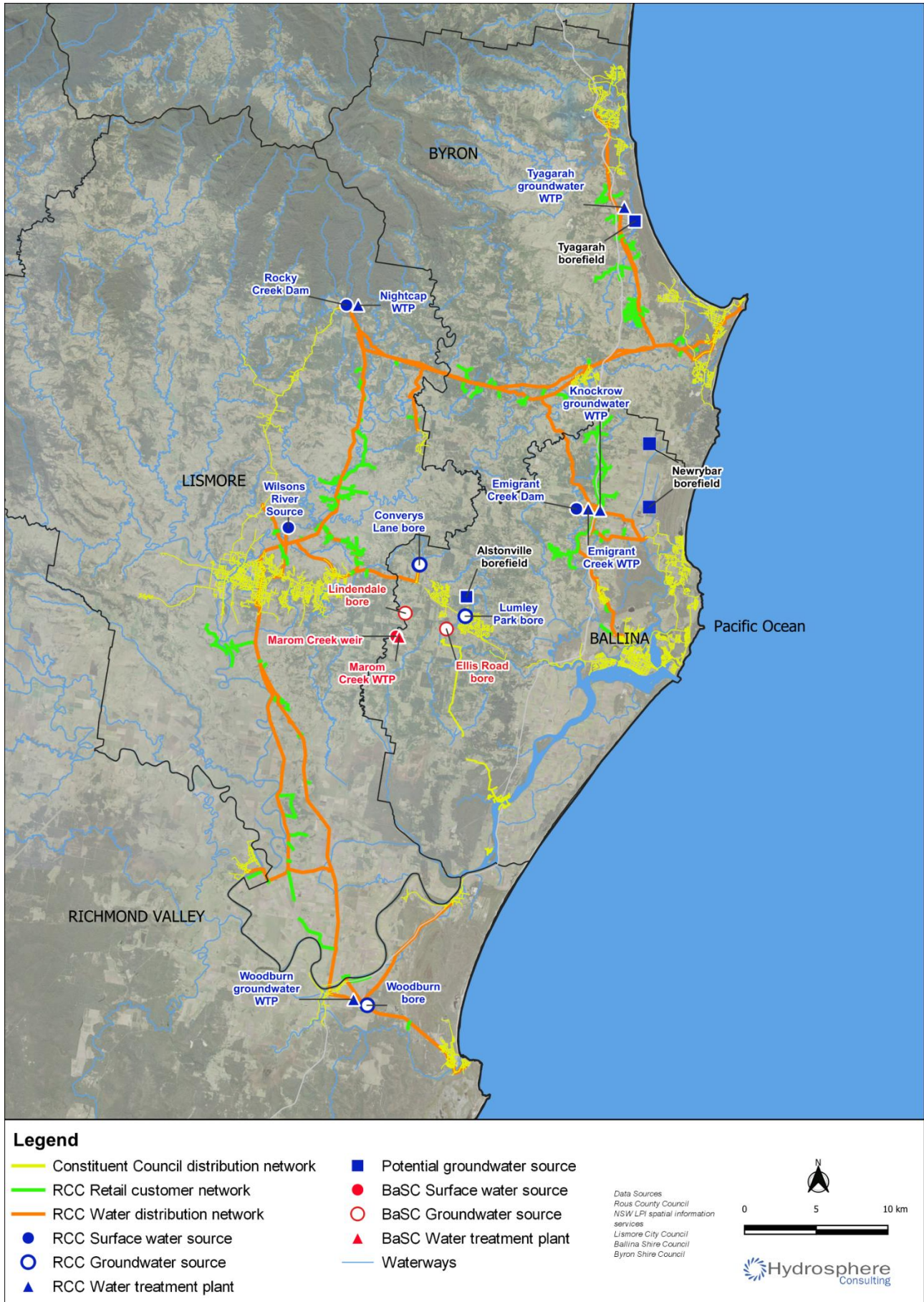


Figure 21: Scenario 1: Groundwater (with Marom Creek WTP)

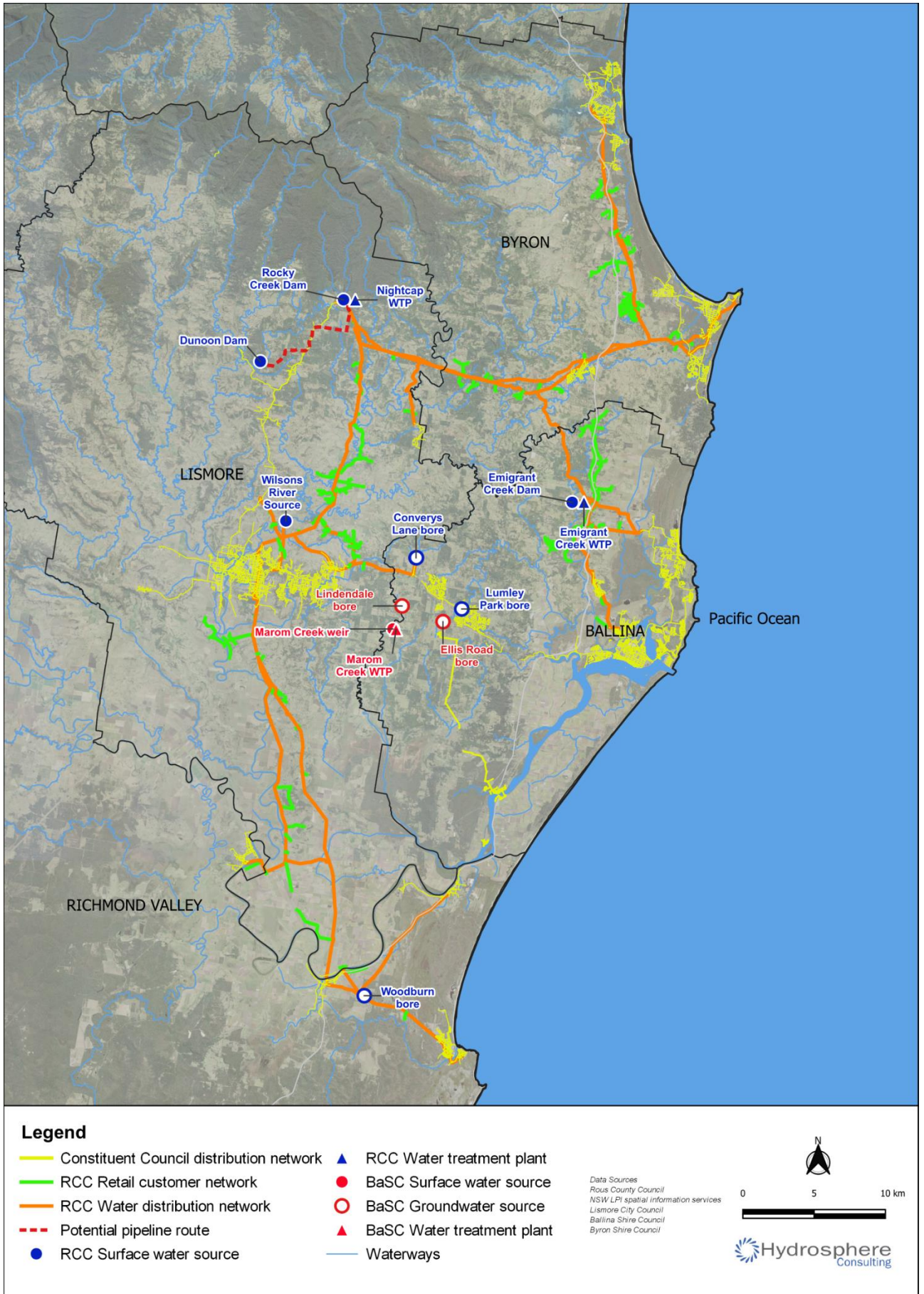


Figure 22: Scenario 2: Dunoon dam (with Marom Creek WTP)

13.3 Secure Yield

The staging and secure yield for each scenario are shown in the following figures compared to the dry year unrestricted demand forecast.

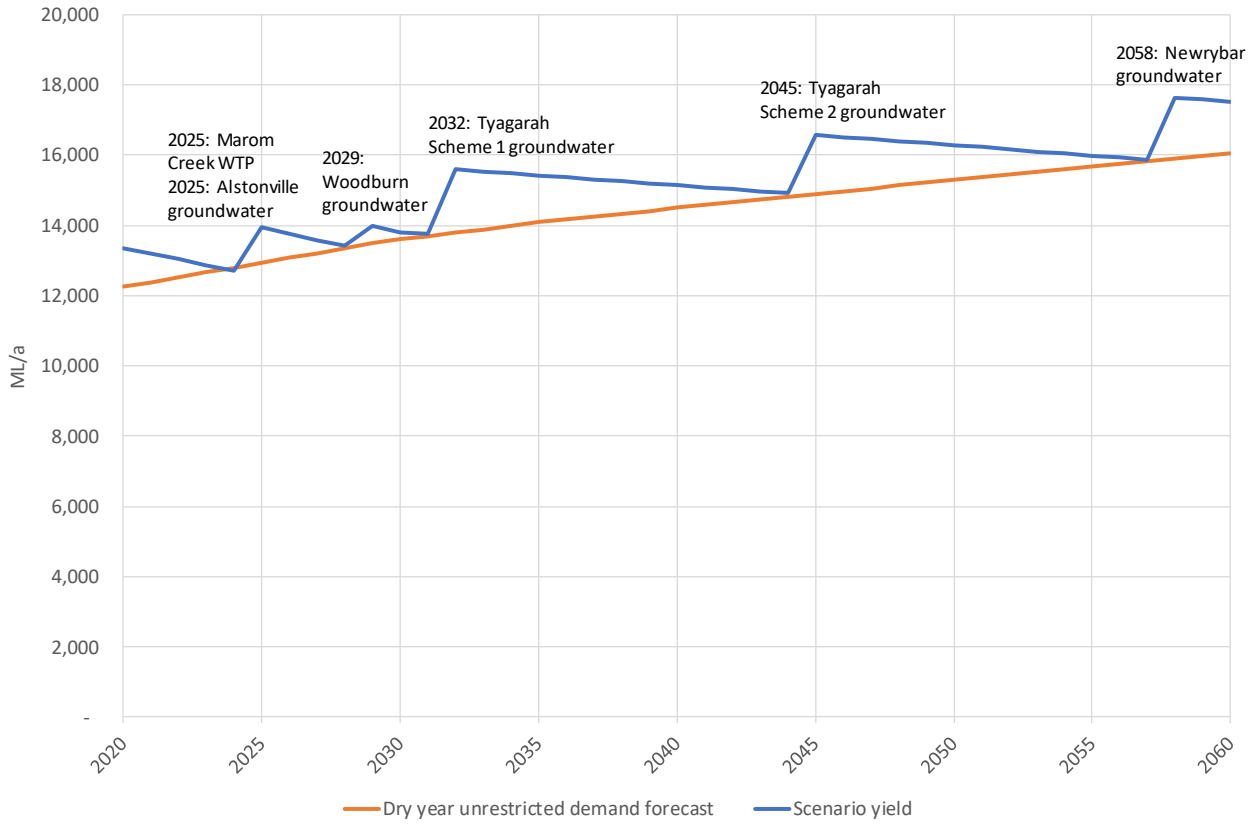


Figure 23: Secure yield and staging for scenario 1: groundwater

The groundwater schemes identified for Scenario 1 will be able to meet demand until approximately 2072 assuming a similar rate of growth in demand is experienced beyond 2060.

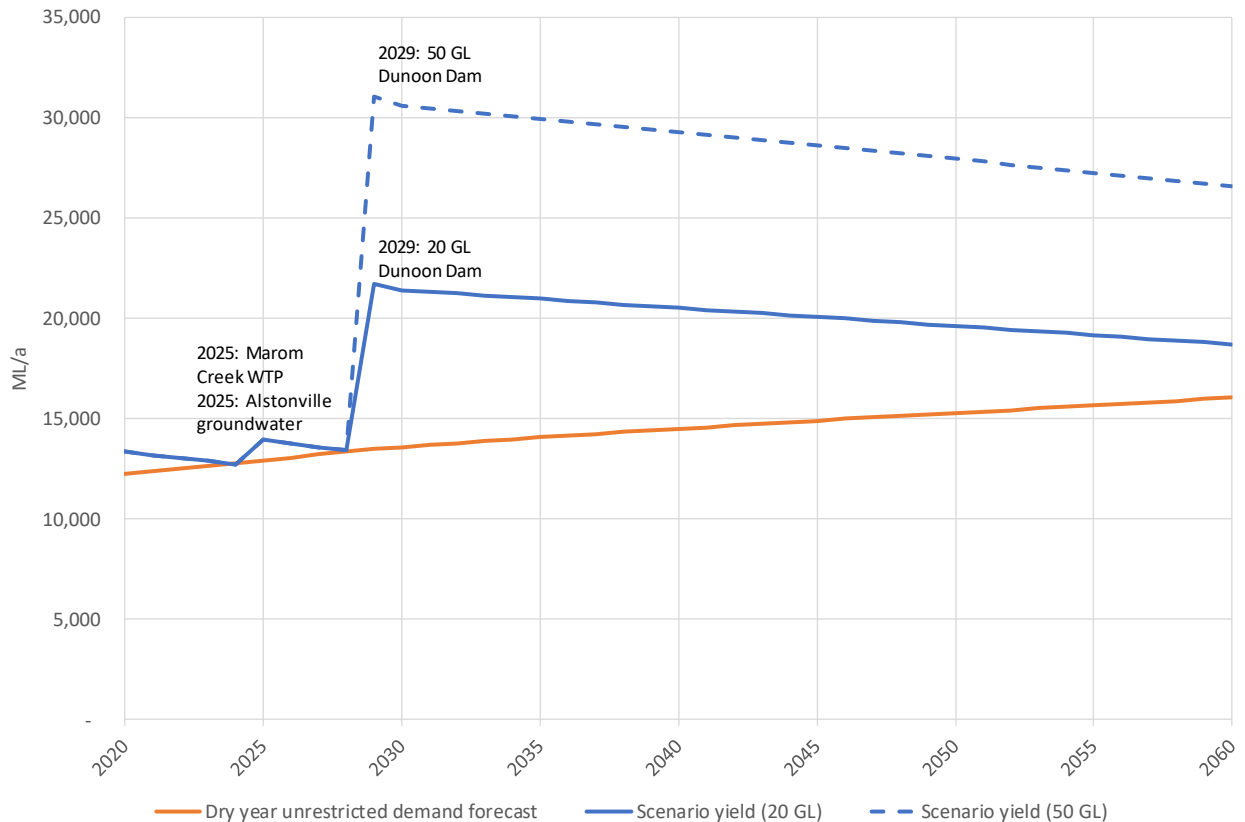


Figure 24: Secure yield and staging for scenario 2: Dunoon dam

Scenario 2A (20 GL Dunoon dam) would require augmentation to the 50 GL dam in approximately 2080 assuming a similar rate of growth in demand is experienced beyond 2060 and assumptions about future yield are realised. The 50 GL demand (Scenario 2B) will be able to meet demand until approximately 2115.

13.4 Multi-Criteria Analysis

13.4.1 Methodology

The multi-criteria analysis (MCA) methodology used in this project has been developed with consideration of previous studies undertaken by RCC in 2014, the coarse assessment (Section 7) and the IWCM Information Sheet 2 – *Evaluation of integrated water cycle management scenarios* (NSW Department of Industry, 2019).

The triple-bottom-line (TBL) assessment criteria are discussed in Table 36. Assessment criteria have been arranged into environmental and social groups.

Table 36: TBL assessment criteria

Criteria	Description	Information used
<i>Environmental (ranked considering the biodiversity management hierarchy – avoid, minimise, rehabilitate, offset)</i>		
Aquatic	Impact on groundwater and surface water quality and aquatic ecology and measures to offset those impacts.	Aquatic biodiversity impacts (e.g. high value aquatic ecosystems, threatened species, water quality, groundwater dependent ecosystems) and offsets proposed (e.g. environmental flows).
Terrestrial	Impact on terrestrial ecology and measures to offset those impacts.	Terrestrial biodiversity impacts (e.g. high value terrestrial ecosystems, threatened species) and offsets proposed (e.g. stewardship/ compensation).
Energy consumption	Operational energy consumption per kL of water produced (over 80 years).	Operational energy consumption (kWh/kL) and production rates.
<i>Social</i>		
Typical residential bill	Impact on the typical residential bills for each Council from the revised notional cost.	Change in notional cost of bulk water supplied (\$/ML) and predicted impact on typical residential bills.
Water users	Impact on other water users and measures to offset those impacts.	Changes to groundwater and surface water flow regime and water available for other users.
Heritage	Impact on cultural heritage and measures to offset those impacts.	Aboriginal and European heritage impacts (sites, artefacts and significance) and management measures.
<i>Economic</i>		
NPV	NPV of capital and operating costs (80 years) at 5% discount rate.	Capital and operating costs.

The environmental and social criteria are further discussed in the following sections.

A weighted score has been calculated for each scenario. Ranking has been calculated as follows:

$$(Environmental\ Score + Social\ Score)/NPV$$

Weightings are assigned to each criterion based on relative importance so that the sensitivity of the weightings can be tested.

13.4.2 Environmental Criteria

Terrestrial and aquatic impacts have been based on the available information as summarised in this report. Detailed studies have been undertaken for the Dunoon dam options (Section 8) and significant impacts on terrestrial and aquatic ecology have been identified. Actions to reduce these impacts (environmental flow regime and terrestrial biodiversity offsets) and the costs of these actions have been included in the dam scenarios. RCC considers that suitable measures can be put in place to obtain planning approval and ensure stakeholder acceptance of the dam scenarios.

While limited environmental investigations have been undertaken for groundwater options, identified impacts are considered to be manageable (potential impacts on GDEs in Tyagarah area require further assessment). RCC considers that suitable measures can be put in place to obtain planning approval and ensure stakeholder acceptance of the groundwater scenarios.

The energy consumption for each option has been estimated from data used in previous reports and presented for each option in the previous sections.

13.4.3 Social Criteria

The impact on customer bills has been assessed using the estimated increase in the notional cost of bulk water (the charge applied to bulk water sales to the constituent councils) at 2060 as a result of funding requirements for the scenarios as estimated by RCC using its financial planning model. The impact of the increase in the cost of water on the typical residential bill charged by the constituent councils at 2060 has been estimated based on the current costs for purchase of water and total expenses for each council. This assumes that the portion of bulk sales to each council remains the same. Other changes to council expenses have also not been considered.

Water sharing plans under the *Water Management Act, 2000* govern the sharing of water in a water source between water users and the environment and rules for the trading of water in the water source. Water access licences (WALs) entitle licence holders to specified shares in the available water within a particular water management area or water source (the share component) and to take water at specified times, rates or circumstances from specified areas or locations (the extraction component). WALs may be granted to access the available water governed by a water sharing plan under the Act.

Rocky Creek is subject to the *Water Sharing Plan for the Richmond River Area Unregulated, Regulated and Alluvial Water Sources 2010*. Use of water captured by Dunoon dam would be subject to a WAL and may require a new or amended licence. The environmental flow regime proposed for the Dunoon dam options is a key consideration for the water use and works approvals. RCC considers that suitable measures can be put in place to obtain approval and ensure stakeholder acceptance of the dam scenarios.

Similarly, for groundwater use, water sharing plan provisions are in place for environmental water allocations, basic landholder rights, domestic and stock rights and native title rights. RCC considers that suitable measures can be put in place to obtain approval and ensure stakeholder acceptance of the groundwater scenarios.

Cultural heritage impact assessments undertaken for Dunoon dam have identified significant Aboriginal cultural heritage values and sites. This remains a key risk to be addressed for this scenario.

Preliminary assessment of cultural heritage impacts undertaken for the groundwater options have not identified any impacts that cannot be managed.

13.4.4 Cost Estimates and Expenditure Profile

Whole of life and NPV cost estimates for the water supply scenarios are shown in the following table. NPV calculations are included in Appendix 1.

Table 37: Scenario cost estimates

Component	Scenario 1: Groundwater (2020 \$)	Scenario 2A: 20 GL Dunoon dam (2020 \$)	Scenario 2B: 50 GL Dunoon dam (2020 \$)
Whole-of-life (80 years)	\$836,397,007	\$619,141,183	\$658,907,966
NPV (80 years @ 5%)	\$195,922,792	\$242,778,718	\$267,518,613
NPV (40 years @ 5%)	\$169,299,256	\$228,151,363	\$252,602,785
Yield benefit (2020 – 2060) ML/a	4,170	5,370	13,249
NPV/ML secure yield (40 years)	\$40,597	\$42,484	\$19,066

The expenditure profile of each scenario and a comparison of the scenarios is shown in the following figures.

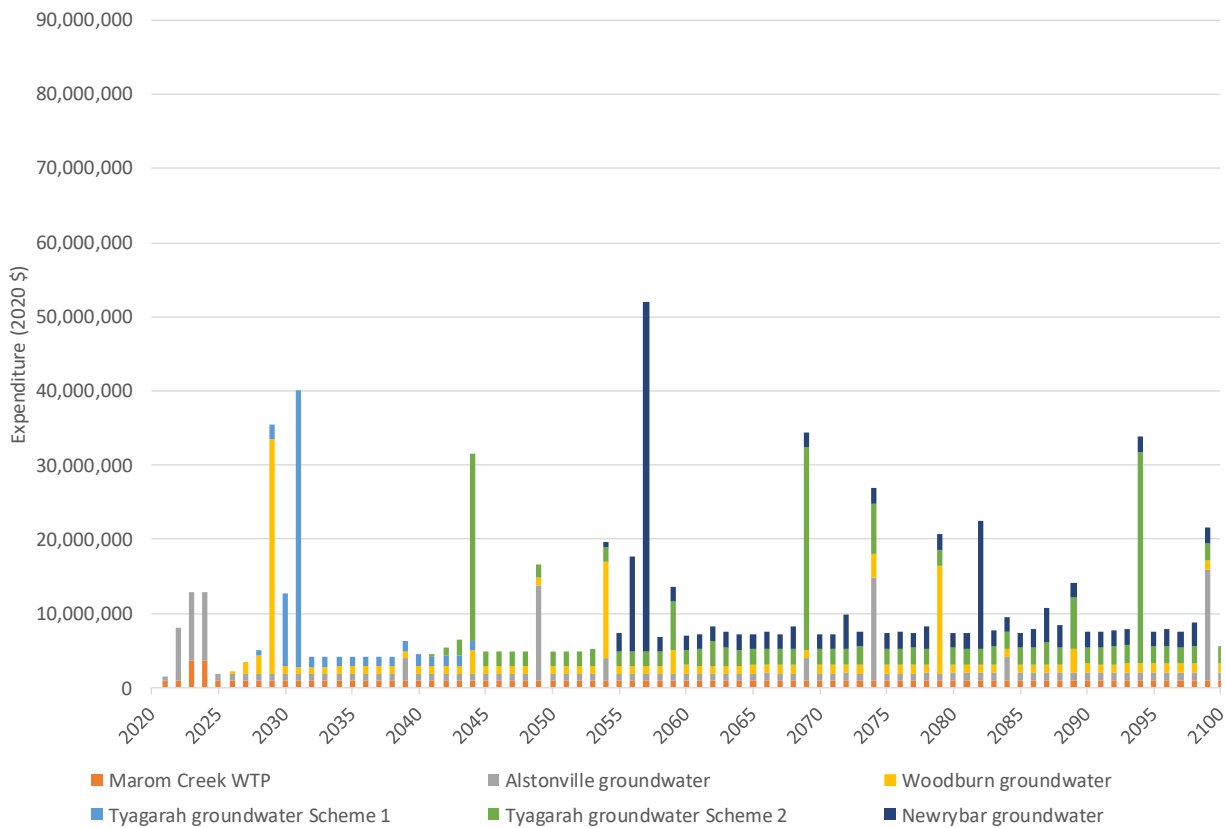


Figure 25: Expenditure profile – Scenario 1: groundwater

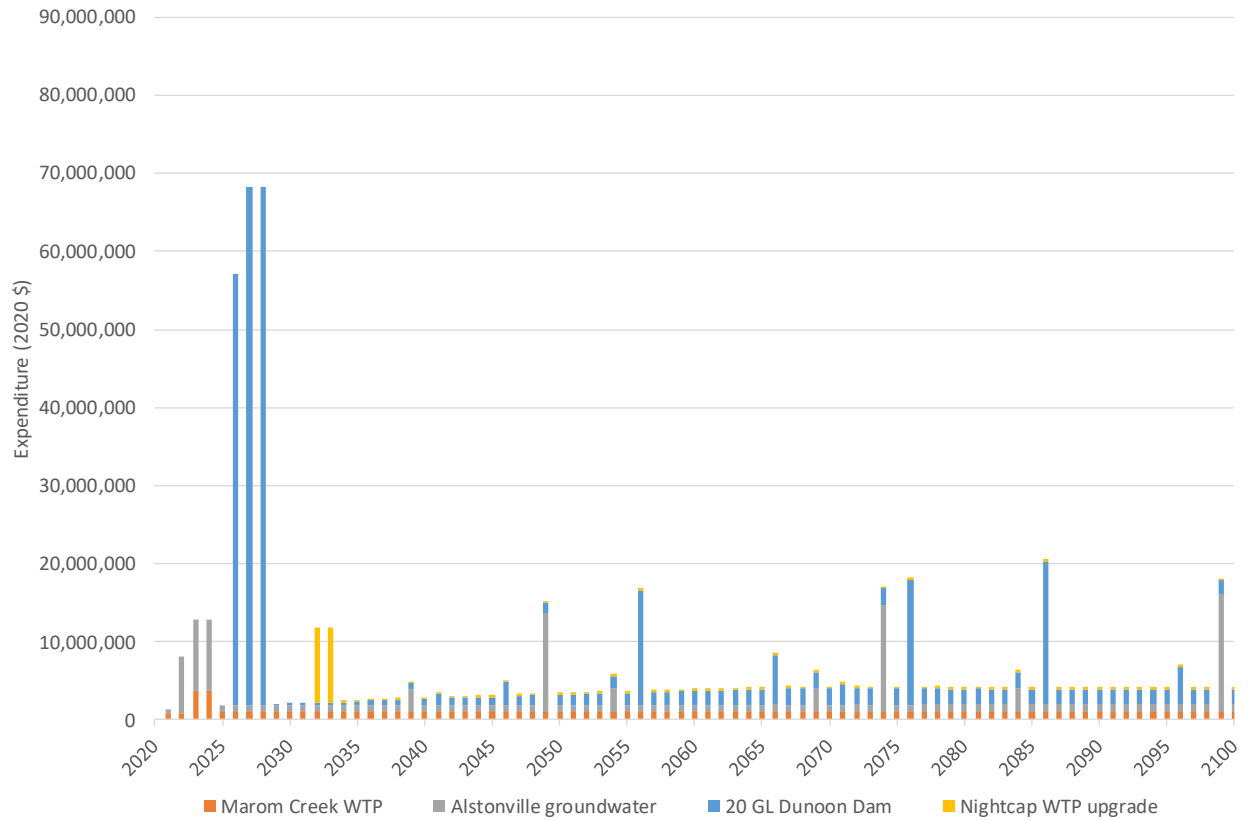


Figure 26: Expenditure profile – Scenario 2A: Dunoon dam (20 GL)

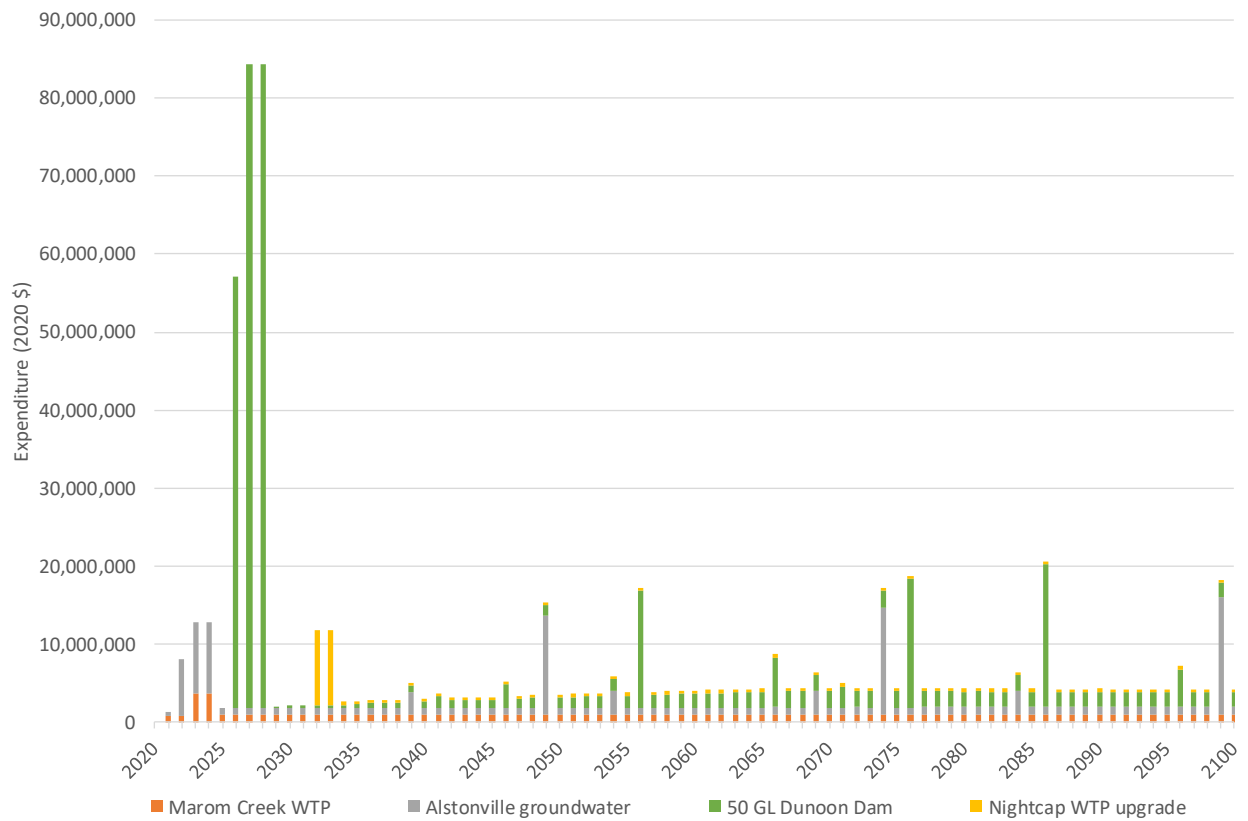


Figure 27: Expenditure profile – Scenario 2B: Dunoon dam (50 GL)

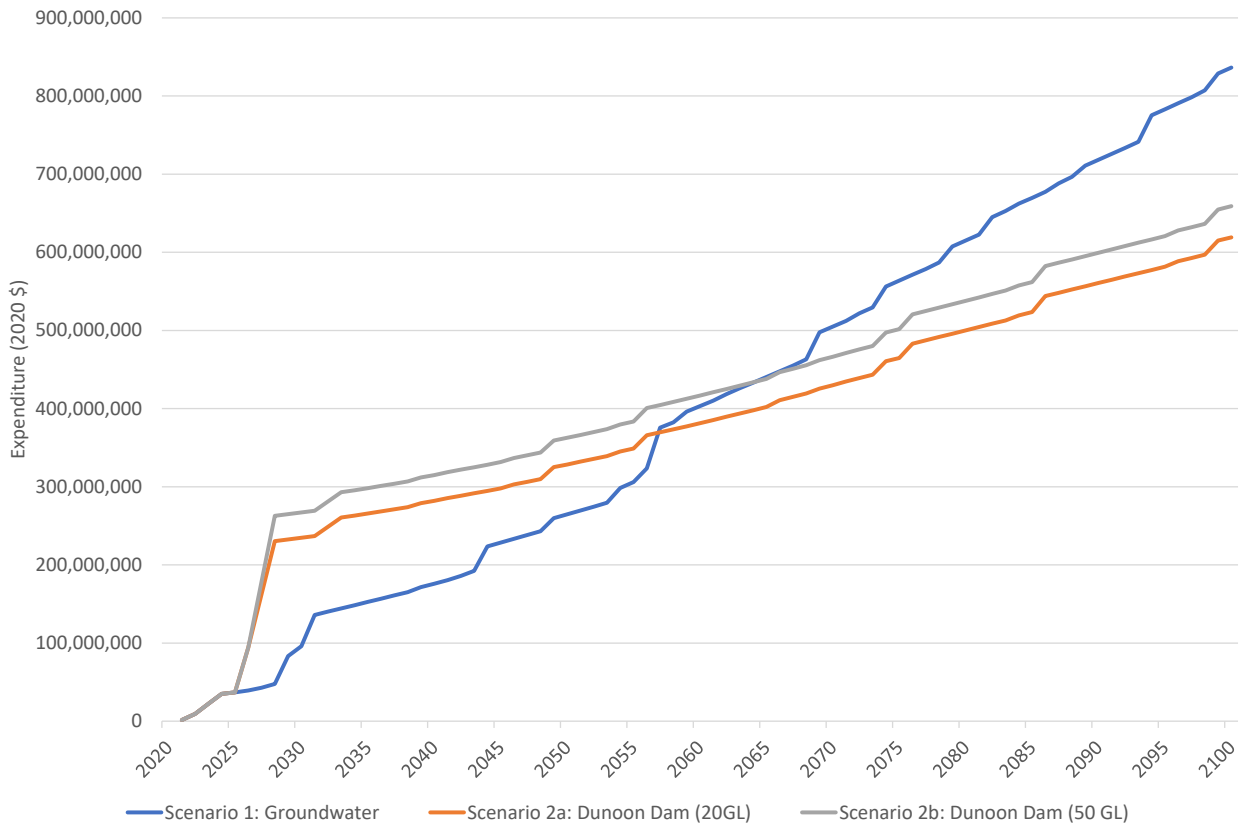


Figure 28: Expenditure profile (cumulative) – scenario comparison

13.4.5 Results

The full MCA is included in Appendix 2. A summary of MCA outcomes (with equal weighting for each criteria) is provided in the following table. Changing the weightings does not change the outcomes of the MCA ranking.

Table 38: Summary of MCA outcomes

Scenario	Environmental score (/5)	Social score (/5)	Total score (per \$ NPV)	Rank (based on MCA)
1: Groundwater	3.05	3.50	16.2	1
2A: Dunoon dam (20 GL)	2.65	1.98	9.9	2
2B: Dunoon dam (50 GL)	2.30	1.65	7.8	3

Based on the MCA, the most favourable scenario is groundwater. The groundwater scenario has a lower NPV (lower initial capital cost but higher and increasing recurrent costs with implementation of each stage) as well as less significant environmental and social impacts. However, the groundwater scenario has a higher whole-of-life cost (total cost over 80 years in present dollars) and a higher NPV per ML of secure yield as shown in Table 37 and Figure 28. Implementation of the groundwater scenario will require ongoing investigations (and associated costs and problem-solving) for the four groundwater schemes.

Although the MCA is informative, it is focussed on the 2060 planning horizon and RCC should consider longer-term issues such as potential source options beyond that timeframe and financial commitment and funding requirements imposed by the schemes. Dams have a long design life and there is excess secure yield in the Dunoon dam options well beyond the 2060 timeframe considered by this study. When the long-

term yield benefit provided by the scenarios is considered, the 50 GL dam option (with high initial cost and lower recurrent costs) with the higher yield benefit is more cost-effective. Although there is a large upfront investment, the dam options can provide long-term certainty and cost efficiencies. The largest dam for the given physical constraints, with planned staging and upgrades, provides only a small incremental risk over the smaller dam. There is a trade-off between the high initial cost and environmental/social impact of the dam and the long-term cost-effectiveness and certainty provided.

14. CONSULTATION

14.1 Public Exhibition – Initial Draft Future Water project 2060

In 2020, RCC prepared a summary brochure with information for the community about the options for securing the region's water supply (*Future Water Project 2060* (RCC, 2020)). The summary brochure described RCC's proposed two-step action plan (in addition to adopted demand management actions):

1. Maximise the benefit of the existing Marom Creek WTP and better utilise the existing groundwater resources on the Alstonville plateau.
2. While the short-to-medium-term demand needs are being met through groundwater sources, the Dunoon dam project would be progressed through further detailed investigations to determine its prospects for approval. These investigations include cultural heritage investigations and consultation, landholder consultation, determining ecological offset requirements, State and Federal funding assistance options and geotechnical assessments.

The draft *Future Water Project 2060* (RCC, 2020) was endorsed by Council at its ordinary meeting in June 2020 for public exhibition from 1 July 2020 for a period of six weeks. Due to the impact of COVID-19 constraints as well as community feedback, the exhibition period was extended to 10 weeks with submissions accepted until 9 September 2020.

The aims of the public exhibition period were:

- To update the community on the outcome of RCC's new water source investigations undertaken since the FWS was adopted in 2014.
- Based on the outcome of these new water source investigations, to advise the community of RCC's proposed future strategy.
- To invite written submissions in relation to the project.

A range of public engagement, communication and other information resources were developed and deployed as part of the public exhibition period including:

- A dedicated project page on RCC's website that hosted all project documentation (including summaries for download).
- A 3D virtual water supply catchment tool.
- Council's Facebook social media account.
- Three YouTube videos.
- Media releases and public advertisements.
- Direct mail to key stakeholders.

Council elected not to host regional briefings or meetings based on COVID-19 restrictions and public health guidance. The community was provided with phone and email access to the project team.

A total of 1,298 online survey responses and other written submissions were received. Council also received a petition not in favour of the dam containing approximately 450 signatures on 16 November 2020, nine weeks after the public exhibition period had closed. Council engaged the Vaxa Group, a specialist stakeholder engagement and communications agency to independently review the feedback received and report to Council. The key themes in the feedback received are (Vaxa, 2020):

- The majority of respondents agree that it is important to act now to secure the long-term water supply for the region.

- There was a high level of objection to Dunoon dam based on concerns about environmental and cultural heritage impacts.
- The majority of respondents prefer water security achieved through:
 - Rainwater tanks and greater self-sufficiency, along with capture and re-use of stormwater.
 - Enhanced demand management.
 - Permanent water restrictions.
 - Water recycling, including IPR.
 - Addressing leaks and losses within the reticulation system.
- There was majority support expressed for the extraction, treatment and use of groundwater, provided this is sustainable and creates no unacceptable environmental impacts.
- The majority of respondents expressed support for the conservation of potable water (e.g. not watering gardens or washing cars with potable water), with alternatives made available for non-potable purposes.
- A smaller number of respondents recommended desalination as an option, particularly for coastal areas.

The majority of respondents recognise the important role of RCC and agreed that action is needed to secure longer-term water supply, but do not support a water supply strategy which includes Dunoon Dam.

Following the public exhibition period, Council acknowledged concerns about impacts on heritage and biodiversity with the Dunoon dam option and resolved not to proceed with the dam. RCC resolved at its meeting of 16 December 2020 to:

1. *Receive and note the public exhibition review document Rous County Council Future Water Project 2060 Public Exhibition Outcomes. Note that 90% of submissions opposed the Dunoon Dam and the receipt of the Traditional Owners statement of opposition. Note that submissions to the public exhibition process are available on the Rous County Council website.*
2. *Authorise the General Manager to cease all work on the Dunoon Dam and provide a report on the orderly exit from Dunoon Dam as an option in the future water project, including revocation of zoning entitlements and disposal of land held for the purpose of the proposed Dunoon Dam.*
3. *Direct the General Manager to revise the draft Integrated Water Cycle Management (IWCM) to reflect the following preferred strategy: a. Scenario 1 IWCM report – groundwater.*
4. *Schedule a special meeting of Council on Wednesday, 17 March 2021 to consider the revised draft IWCM Strategy for public exhibition for a period of eight (8) weeks.*
5. *Authorise the transfer \$200,000 from bulk water reserves for the 2020/21 financial year to progress the above.*
6. *Undertake the following actions as described in Section 4 of this report:*
 - j) Immediate actions*
 - a) Water Loss Management Plan*
 - b) Smart Metering*
 - c) Marom Creek WTP and Alstonville groundwater site*
 - d) Marom Creek WTP upgrade*

e) *Alstonville groundwater site*

f) *Woodburn groundwater coastal sand scheme*

ii) Ongoing action

a) *Enhanced demand management and water efficiency program*

iii) Innovative action

a) *Progress Perradenya Estate pilot purified recycled water scheme and work with relevant stakeholders to design a long-term public education campaign to increase awareness and acceptance of indirect potable reuse (IPR) and direct potable reuse (DPR).*

b) *Investigate concurrently IPR and DPR schemes utilising effluent from Ballina, Lennox, south and east Lismore wastewater treatment plants (preferred options for water reuse identified in the CWT report).*

7. *Note that environmental, ecological, cultural heritage and economic impacts were identified during the development of the IWCM and were also raised as concerns during the public exhibition period and will remain key considerations going forward.*

8. *Note the progress of discussions with Ballina Shire Council regarding the potential transfer or lease of Marom Creek WTP and that a further report will be provided.*

9. *Authorise the General Manager to write to the constituent councils inviting participation in the Rous Smart Metering project commencing 1 July 2021.*

10. *Seek a meeting with relevant State Government Ministers and Local MPs to expedite any regulatory and legislative or funding approvals required to implement IPR and DPR schemes.*

The Rous Future Water Project 2060 was revised in accordance with that resolution in March 2021, omitting the Dunoon Dam option from future consideration and including disposal of the land held by Council.

14.2 Public Exhibition – Revised Draft Future Water Project 2060

Council, at its extraordinary meeting on 17 March 2021, approved the revised draft Future Water Project 2060 for the purpose of an 8-week public exhibition period (1 April 2021 to 28 May 2021). The aims of the public exhibition period were to inform the community of the revised draft Future Water Project 2060 and seek initial feedback on Stage 3 options contained within the strategy. The overall engagement was based on an ‘inform’ and ‘consult’ approach (based on the IAP2 public participation spectrum) with a greater effort being placed into community events and information sessions (due to the relaxation of COVID-19 restrictions, when compared to the previous exhibition period of the initial draft Future Water Project 2060).

Consultation method included:

- A dedicated project page on Council’s website that hosted all project documentation.
- Community summary brochure.
- Key documents and summaries for review and/or download.
- Responses to frequently asked questions.

Council promoted the opportunity to make comment through the public exhibition using advertisements within media, flyers, media releases, social media, information events and radio interviews.

A total of 13,782 submissions were received (Vaxa, 2021):

- RCC online survey – 558 submissions.

- Written submissions (largely proforma driven) – 1,854 submissions (1,849 unique).
- Petitions – 11,317 submissions.
- Through website – 7.
- Late written submissions – 50.

High level findings of the public exhibition period were (Vaxa, 2021):

- Online survey - the written (proforma) submissions and petitions clearly state a position for or against the Future Water Project 2060, primarily based on a stance towards the Dunoon Dam. The slight majority of survey respondents support the use of groundwater (50.3%) however support is stronger for indirect potable recycled water (64%), direct potable recycled water (68%) and desalination (57%).
- Submissions and petitions - the majority of respondents support further work being undertaken on the Dunoon Dam proposal as part of the region's water security solution, with less confidence in other water source options. A minority of petition respondents also expressed support for groundwater, in addition to water loss management focused on RCC assets, drought management planning and smart metering. In relation to groundwater, there was support expressed provided this is sustainable and not sourced from the existing upper-level Alstonville aquifer.

After the public exhibition period, Council received a letter from the NTSCorp, acting on behalf of the Widjabul Wia-bal Native Title claim group. The letter requests that no decision in relation to the Dunoon dam proposal, including disposal of the land by Council, should proceed without proper consultation with the group. The group has also requested that RCC commissions a qualified archaeologist to prepare an Aboriginal cultural heritage assessment for the proposal area and commit to meaningful consultation with the group. The group reaffirmed that the site remains of cultural and spiritual importance, as it contains numerous Aboriginal sites, including burial sites, with the ongoing protection of these sites being of the utmost importance.

RCC resolved at its meeting of 21 July 2021 that Council:

1. *Receive and note the public exhibition review document attached to the report entitled 'Future Water Plan 2060 Public Exhibition of revised Integrated Water Cycle Management Strategy outcomes June 2021' prepared by Vaxa Group, in relation to the revised draft Integrated Water Cycle Management (IWCM) Strategy placed on public exhibition for 8 weeks from 1 April 2021 to 28 May 2021.*
2. *Note that copies of submissions received during the public exhibition period are available on the Rous County Council website.*
3. *Thank all persons and organisations that provided a submission to, or engaged in, the public exhibition and consultation process.*
4. *Adopt and confirm the revised IWCM Strategy as resolved at the Extraordinary meeting on 17 March 2021.*
5. (a) *Receive and note the letter dated 30 June 2021 from NTSCorp regarding various matters associated with the Reconciliation Action Plan Advisory Group and the Dunoon dam project Aboriginal cultural heritage report.*
 (b) *Receive a response from management on the matters outlined in the NTSCorp letter mentioned above at 5(a).*
 (c) *Enter into genuine consultations with the relevant traditional custodians including Widjabul Wia-bal Native Title Claim Group prior to any decision being made by Rous in relation to the Dunoon Dam project area.*

6. *Defer the report outlining options for dealing with land owned by Rous identified as part of the proposed Dunoon dam that was resolved by Council at its meeting of 16 December 2020 (resolution [61/20] Item 2), until after the next scheduled revision of the IWCM.*

15. PREFERRED SCENARIO

In response to the community feedback and key considerations for the regional water supply, the Future Water Project 2060 will include a diversified portfolio of actions to meet the region's water security needs:

- Immediate actions: to increase the system secure yield from 2024.
- Ongoing actions: business as usual actions including reducing potable water demand, improving knowledge of future demand and secure yield and drought management planning.
- Innovative actions: to investigate the increased use of recycled water.
- Long-term actions to confirm and develop the most appropriate long-term water supply scheme components to be implemented.

These components are discussed further in the following sections.

A secure water supply is critical to ensure the regional community's health and quality of life as well as a sustainable environment and continued economic prosperity. RCC has a duty to ensure that there is enough water available to meet the long-term needs of the Ballina Shire, Byron Shire, Lismore City and Richmond Valley Councils and their communities. By 2060, the secure yield of Council's existing bulk supply system is forecast to be 10,427 ML/a. Based on the forecast demand of 16,054 ML/a in 2060, this is a forecast annual yield deficit of 5,619 ML/a in 2060. Taking into account the forecast decline in the system secure yield, it is currently estimated the existing system secure yield will be sufficient to supply demand until 2024. After this time, the existing system cannot meet forecast demand without the potential for more frequent, longer and severe water restrictions. Based on Council's current demand and secure yield forecasts, investment in new water sources cannot be continuously deferred and eventually new sources of water will be required to meet the region's long-term water needs.

If the water security issues are not addressed in a logical, timely and coordinated manner, RCC will be required to:

- Develop new water sources with inadequate time and increased costs, resulting in unfavourable operational conditions and return on investment.
- Implement costly emergency drought works with potentially detrimental environmental impacts.
- Implement longer and more severe water restrictions that significantly impact the community, local businesses, including tourism and industries as well as overall regional investment.

15.1 Source Augmentation Staging

The augmentation of water supply sources will be undertaken in stages which have been selected based on the benefits, costs, lead time and expected success of each option in contributing to a secure water supply for the region.

The first stage of the preferred scenario includes Marom Creek WTP treating groundwater from Alstonville (Lumley Park and two new bores) in addition to surface water supplies from Marom Creek weir. This augmented supply would be operational by 2025 and would be expected to meet demand until 2028. The Alstonville groundwater supplies would be used to augment the regional water supply to Alstonville and Wollongbar when the level in RCD reaches 95%. The Marom Creek weir and WTP would continue to supply Wardell at all times.

Groundwater options available for Stage 2 (beyond 2028) include Woodburn (increased to 5.0 ML/d), Tyagarah and Newrybar. As Woodburn bore 3 is currently included as a dry period supply (Section 3) and is the most viable groundwater source that would be available within a short lead time if required in a drought (refer Section 10.10), the Woodburn option will be preserved as the dry period supply for when RCD reaches

60% as shown in Table 39. Stage 2 of the preferred scenario will include the implementation of the Tyagarah groundwater source as a primary supply. The location and capacity of the Tyagarah groundwater bores will be confirmed following assessment on GDEs although the preferred scenario assumes the bore will supply 7.5 ML/d (Tyagarah scheme 1 from 2029).

Stages 1 and 2 of the Future Water Project 2060 are shown on Figure 30. The proposed operating rules for the augmented supply following stage 1 and 2 are summarised in Table 39. RCC will continue to optimise the use of available water sources.

The yield increase for each stage of the preferred augmentation scenario to 2040 is shown in Figure 29. The secure yield is expected to continue to decline with the effects of climate change and additional source/s will be developed as required during stages 1 and 2.

Table 39: Proposed operating rules for regional water supply following stage 1 and 2 augmentation

RCD supply level (% of full supply volume)	Status	Sources in operation
100%	Normal operation	RCD only
95%		WRS, ECD, Marom Creek weir and Alstonville groundwater, Tyagarah groundwater
60%	Dry period operation	Woodburn bore 3
30%		BaSC plateau bores (Lindendale and Ellis Road)
20%	Emergency operation	Emergency supply source
15%		
10%		

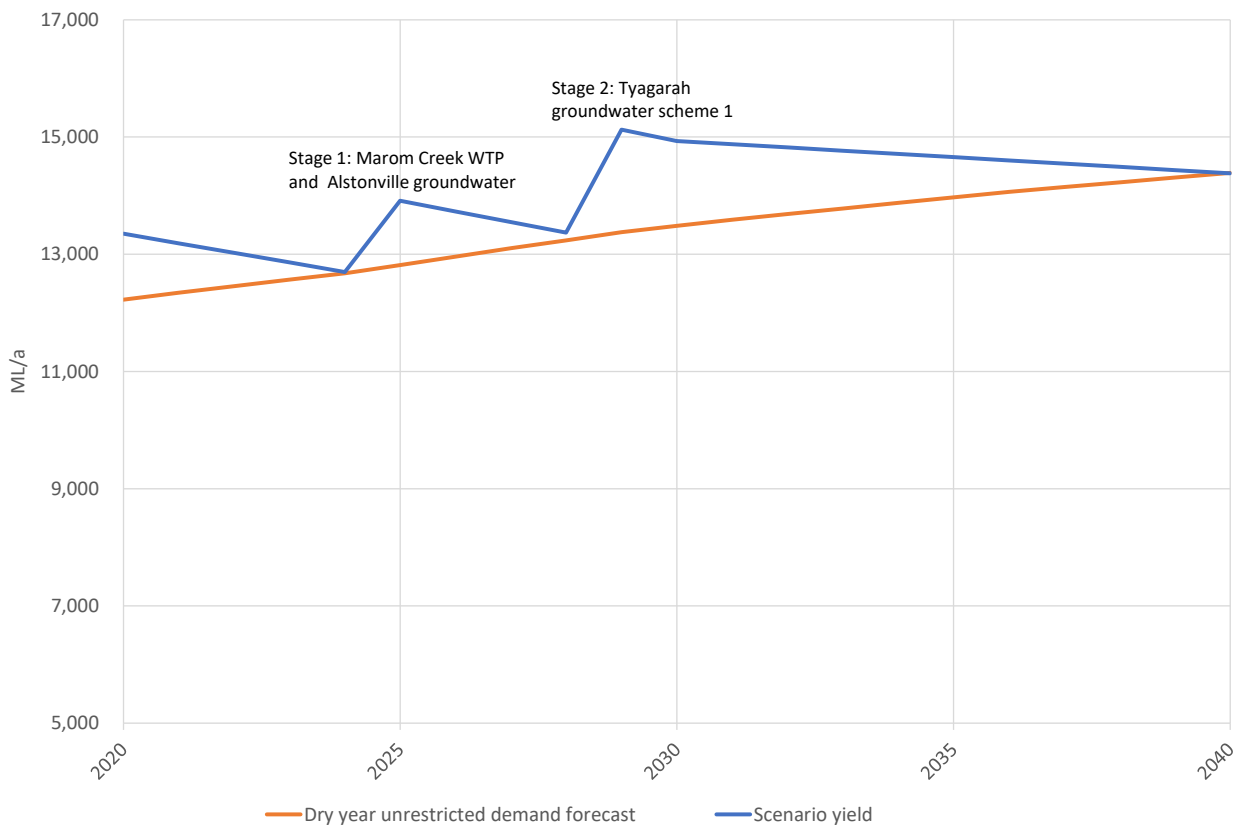


Figure 29: Preferred scenario: staging and secure yield

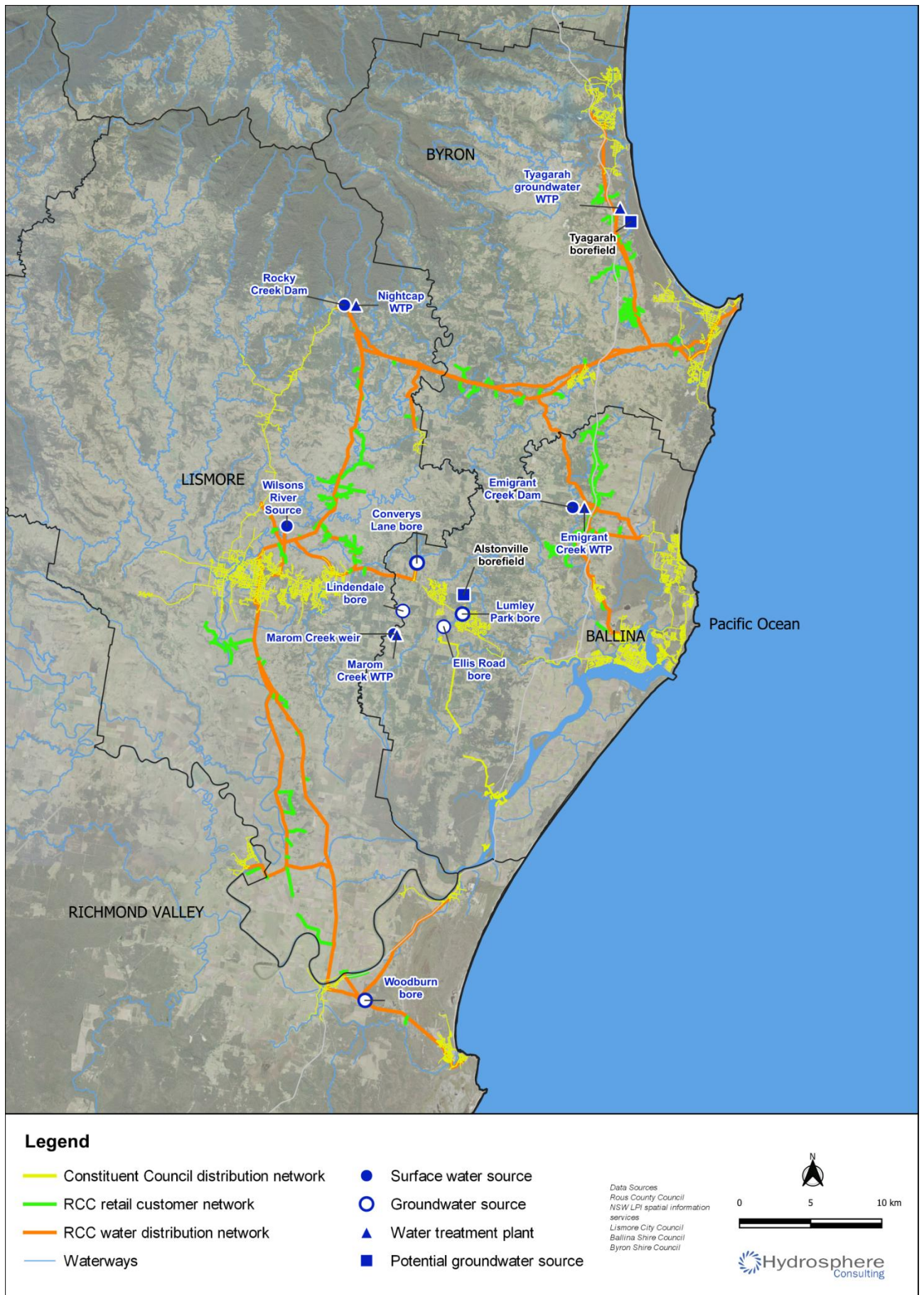


Figure 30: Preferred scenario: Marom Creek, stage 1 and 2 groundwater

Source augmentation options beyond 2040 into Stage 3 will require further investigation but may include additional groundwater schemes, desalination and/or water recycling. The development of water sources and treatment facilities is shown schematically on Figure 31.

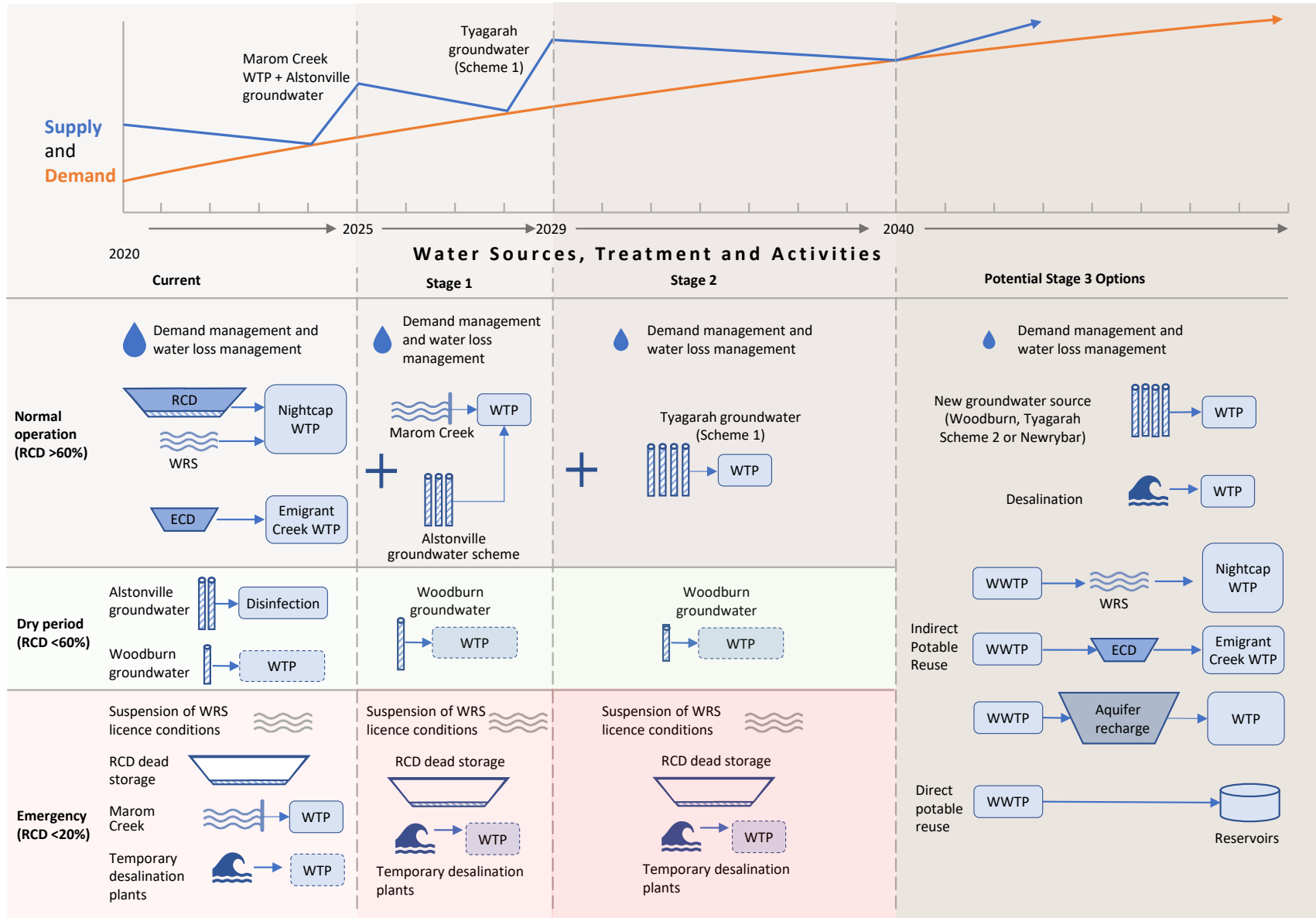


Figure 31: Staging of water source augmentation

15.2 Immediate Actions

15.2.1 Marom Creek WTP and Alstonville groundwater

The first step will be to maximise the benefit of the existing Marom Creek weir and WTP owned by BaSC and better utilise the existing groundwater resources on the Alstonville plateau. This requires RCC to:

- Secure Marom Creek WTP as a regional source option - at its meeting of 27 August 2020, BaSC agreed to negotiate with RCC in respect to either the transfer of the Marom Creek water supply assets to RCC or for a long-term agreement, which would facilitate the supply being used as proposed by RCC. RCC and BaSC will undertake a detailed study of the Marom Creek weir and WTP to identify a price for the transfer of assets including consideration of asset condition, operation, value, future income and other financial considerations.
- Consult with NRAR to increase the licence extraction limit (from Marom Creek weir) to supply Alstonville and Wollongbar in addition to Wardell.
- Complete WTP upgrade works to ensure it can meet the demands for water within the supply area - capital works to improve the operating and treatment efficiency of the plant are being implemented by BaSC in 2021. These works will allow the plant to meet current and future anticipated water quality requirements. The works include filter refurbishment, filter media replacement and ultraviolet disinfection.
- Environmental assessment and approvals.
- Concept development and detailed design of raw and treated water transfer systems.
- Redevelop the Alstonville groundwater bores to fully utilise the capacity of the Marom Creek WTP and provide increased drought resilience.

15.2.2 Woodburn groundwater

The Woodburn groundwater option requires new bores and treatment infrastructure as discussed in Section 10.3. To enable the use of Woodburn groundwater supplies as a dry-period source in the short term, RCC will investigate treatment requirements and commission a pump and package WTP for bore 3 if required during a drought.

15.3 Ongoing Actions

15.3.1 Demand management

The RDMP provides a series of demand management measures to be implemented by RCC and the constituent councils between 2019 and 2022 as discussed in Section 4. The Regional Water Supply Agreement Liaison Committee is overseeing the plan implementation and ensuring the actions specified in the RDMP are completed. The Committee is also responsible for assessing if the plan is meeting its objectives and how best to adapt the plan to incorporate the latest knowledge, experience and technology in a process of continuous improvement.

Success of the RDMP will be gauged through:

- Reporting of action implementation (including timing and completeness).
- KPIs as specified for each RDMP action (Section 4).
- Local and regional demand indicators and achievement of targets.

Annual review of the RDMP is undertaken by 30 September of each year and includes:

- A review of demand data.
- An evaluation of the effectiveness of RDMP actions.
- Review of the appropriateness of the KPIs.
- Feedback from the customers.
- An assessment of the impact of RDMP actions on RCC and the constituent councils in terms of costs, resourcing and operations.

The RDMP will be reviewed in four years (by June 2023) and a revised plan will be prepared with consideration of the outcomes of the annual reviews. The revised plan will specify demand management measures to be implemented over the four-year period between 1 July 2024 and 30 June 2028.

15.3.2 Water loss management

Action 2: Water loss management in the adopted RDMP (Section 4) includes the following tasks:

- Task 2.1: Develop and implement Water Loss Management Plans (WLMPs), actions and targets. RCC has assisted the constituent councils to develop WLMPs to be implemented by each council. The WLMPs identify actions and the expected reduction in water losses which has been incorporated in the demand forecast.
- Task 2.2: Develop local NRW targets for each service area/zone to support achievement of regional targets.
- Task 2.3: Develop and implement an electronic reporting tool to predict and identify leaks in the bulk water distribution system. Leak detection has been addressed in the RCC WLMP.
- Task 2.4: Monitor and report water losses in accordance with a standardised reporting procedure.

The RCC WLMP (Detection Services, 2019) provides recommendations for metering and pressure management, data collection, reporting and active leak detection. The estimated cost of the program is \$1.4 million over four years.

RCC will continue to implement the water loss management actions, review progress and modify the actions if required as part of the review of the RDMP. RCC will continue to implement leakage reduction measures in its supply network and support the constituent councils with water loss reduction measures.

15.3.3 Smart metering

A smart meter is a normal water meter connected to a data logger. It can allow for the continuous monitoring of water consumption for the water utility and the customer to assist in demand management. Smart metering remotely collects water flow data that would otherwise require manual reading through a data logger. It sends the water data via a signal where it can be viewed in a web interface in near real time. Loggers can either be connected to existing meters or integrated purpose-built smart water meters that have mechanical or electronic flow measuring, volume recording and communications capabilities in one device. With developments in smart water metering technology, new opportunities have arisen to achieve water savings through better understanding of real-time water consumption.

BaSC has implemented a policy requiring all new connections greater than 20mm and properties with multiple tenancies to install automatic meter reading devices. Meters on all BaSC properties have also been retrofitted with the smart meter loggers. The devices will be analysed by a leak detection algorithm and results reported to the customer. Smart water meters are being trialled in the Byron Shire from November 2020 as part of a 12-month pilot project. Approximately 400 smart water metering devices have been

installed on residential and commercial properties in East Mullumbimby and selected bulk recycled water clients in Byron Bay. BySC is considering the smart water meter technology for a potential Shire-wide rollout in the future and the pilot project will help assess its viability.

Action 4: Smart metering in the adopted RDMP (Section 4) includes the following tasks

- Task 4.1: Review program objectives and scope, technologies/suppliers for infrastructure, software and devices (complete). A detailed study undertaken for RCC and the constituent councils (Reid and ecodata, 2019) considers that the water utilities should not be committing to a smart metering solution in the short term due to the limited technologies and vendors with a proven track record at this time. However, in the near future there will be more mature and non-proprietary technology options and several service providers to choose from. The study found that RCC and the constituent councils should plan for and make changes for when the decision is made to proceed with smart metering. This will ensure that the data can be used in a planned and orderly manner with maximum value extracted from it for the benefit of all business units and customers. Comprehensive digital utility transformation and strategies need to be developed, approved and promulgated well before committing to a smart metering solution for the region (Reid and ecodata, 2019).
- Task 4.2: Develop a business case for investment in infrastructure including extension of the program to other operational requirements. Reid and ecodata (2019) recommended that a working group comprising representatives from RCC and constituent council business units should develop a program for implementation of smart water metering and digital transformation.
- Task 4.3: Develop funding and subsidy model based on supply of infrastructure and software and rebates/participant contributions for devices.
- Task 4.4: Identify preferred technology/supplier.
- Task 4.5: Roll-out of the preferred technology.
- Task 4.6: Develop and implement a communication and engagement strategy.

RCC will continue to implement the smart metering actions, review progress and modify the action if required as part of the review of the RDMP.

15.3.4 Drought management planning

The regional water supply operating rules identify water sources to be used during normal operation, dry periods and drought emergencies. The *Regional Water Supply Drought Management Plan* documents a regional restriction regime with triggers based on RCD storage level (Section 3). The plan also identifies emergency water supply options that can be implemented if required to provide a greater level of resilience in the event of a drought emergency. Of the identified emergency supplies, the Marom Creek weir and WTP option is included in RCC's preferred augmentation scenario as a normal operation source at stage 1. The most viable emergency supply options over the long term are the increased extraction from WRS and temporary desalination plants as they are technically feasible and can be implemented in relatively short timeframes. Additional groundwater supplies from the coastal sands groundwater sources (Newrybar or Tyagarah) and desalination (temporary potable plants) may also be implemented in the event of a drought emergency but will also be considered as future primary sources in the longer term.

Monitoring and evaluation are essential tools for the implementation and ongoing improvement of the *Regional Water Supply Drought Management Plan*. The Regional Water Supply Agreement Liaison Committee oversees the plan implementation and ensures the pre-drought and on-going actions defined in the Operational Readiness Plan are completed. The Committee is also responsible for assessing if the plan is meeting its objectives and how best to adapt the plan to incorporate the latest knowledge, experience and technology in a process of continuous improvement.

The drought management plan will be reviewed during Stage 1 of the Future Water Project (by June 2025) and a revised plan will be prepared with consideration of the outcomes of any post-drought reviews and the status of implementation of water supply sources by that time. The revised plan will specify revised operating rules and drought management measures to be implemented over the five-year period between 1 July 2025 and 30 June 2030. Further investigation of the emergency supply options will be required as part of the next update of the Drought Management Plan.

15.3.5 Review of the Future Water Project 2060

The Future Water Project 2060 will be reviewed and updated as follows:

- Annual review – by 30 June each year, RCC will review the progress of each action, particularly the implementation of new sources and review the strategy as required. RCC will review and update its capital works project and financial plan annually.
- Every four years (commencing in 2025), RCC will conduct a mid-term review of the strategy including review of the status of stage 2 and longer-term water supply options investigations. RCC will also review the notional cost of bulk water supply in consultation with the constituent councils to set the medium-term price of bulk water to be supplied.
- The implementation of the strategy relies on key data such as the water supply demand as well as assessment of secure yield. Every eight years, the strategy will be updated considering the findings of the mid-term reviews and updated information on demand, secure yield, the outcomes of stage 1 and 2 and any new information on water supply options. The major review of the strategy will be undertaken earlier if new information on future growth, water sharing rules or climate change impacts becomes available.

Demand forecasting

Council's current water demand forecast for 2020 – 2060 includes analysis of the properties connected to the bulk water supply, the demand of each property and temporal and spatial variations, changes in rainfall and climate patterns, industry and business development, tourism, population and housing growth, as well as the ongoing adoption of water efficient appliances and other water conservation measures. The demand forecast is based on historic water usage as well as forecast rainfall, climate, number of connections and demand management trends. In particular, Council has relied on the regional growth predictions determined by its four constituent councils to forecast how many properties will be connected to the bulk water supply in the future. The long-term predictions about future water demand always involve a degree of uncertainty and ongoing monitoring and modification of the forecast will be required. It is important that the appropriateness of these assumptions is monitored and reviewed regularly so that the future demand profile can be updated.

The RDMP included a monitoring, evaluation and reporting action with a standardised reporting program in accordance with the best-practice requirements with:

- Bulk water production by service area/zone.
- Number of connections by customer/connection type.
- Number of connections with alternative water supplies.
- Accurate estimation of the numbers of multi-residential and multi-non-residential connections and their consumption.
- Total consumption by connection type in each zone/service area.
- Total volume of metered water use by connection type.

Similar reporting requirements have been included in the Service Level Agreements between RCC and the constituent councils. In addition, definitive long-term growth strategies are required across the regional supply area to more accurately predict future demand.

The demand forecast will be reviewed and updated every eight years or more frequently if improved datasets are available.

Secure yield assessment

The Future Water Project 2060 also relies on the available information on stream flows, groundwater availability and the impacts of climate change on the secure yield of the regional water supply. In particular, assumptions have been made about the impacts of climate warming, the timeframe over which warming will occur in future and the resulting decline in yield experienced at 2030 and 2060. As new information becomes available and the methodology for assessment of future secure yield is refined, RCC will undertake a review of the secure yield assessment and implications for future supply planning.

15.4 Water Recycling

15.4.1 Direct non-potable reuse

Recycled water for non-potable supply to households and businesses is available in some parts of the region and is likely to contribute to a reduction in overall water demand across the region in the future. All houses in new developments in the Ballina and Lennox Head urban areas since 2003 have a dual water supply system (dual reticulation) in place with recycled water supplied through the system since 2017. Non-potable supplies in these areas are available for flushing toilets, washing clothes and watering gardens. Recycled water is also available in some parts of Byron Bay for toilet flushing to supplement potable supplies. The schemes are still in their infancy and will be further developed over time.

RCC offers a recycled water scheme rebate to residential properties for connection of recycled water for outdoor use, toilet flushing and cold water washing machine taps. Rebates are available for non-residential customers through the Sustainable Water Partner Program. Customers in Ballina Shire and Byron Shire are eligible for rebates where the property is not required to connect to an approved recycled water scheme as part of BASIX.

BySC also provides customers with the opportunity of funding the portion of the connection to the recycled water scheme that is not eligible for a rebate through increased future recycled water bills (rather than up-front payments).

Action 5: Recycled water in the adopted RDMP (Section 4) includes the following tasks within Byron and Ballina shires:

- Task 5.1: Develop procedures for implementation of rebates and reporting requirements (complete).
- Task 5.2: Implement rebate program within BaSC and BySC supply areas (ongoing).
- Task 5.3: Document strategy for connection to existing recycled water systems or expansion of existing systems (in progress).
- Task 5.4: Develop marketing strategy and promote opportunities for recycled water connections to existing and new customers (in progress).

RCC will continue to support the constituent councils with the implementation of recycled water schemes and rebates. RCC also has a longstanding commitment to provide the Perradenya Estate (168 lot under development by RCC) with access to a recycled water supply system which is discussed further below.

15.4.2 Direct Potable Reuse

Direct potable reuse (DPR) requires the treatment of sewage effluent from an existing or new WWTP to produce reclaimed water of a quality that would be suitable for drinking purposes. This water would then be provided direct to consumers. This option requires a very complex water treatment process, detailed monitoring and emergency contingency procedures. Currently there is a national framework providing guidelines for reuse but no state framework for the verification and approval of a DPR scheme. Based on experience around Australia, the preferred approach is a demonstration facility to develop broad community acceptance prior to seeking the formal approval. The 2014 IWP and the coarse screening assessment undertaken for the Future Water Project (Section 7) found that DPR is not a feasible short-term component of the Future Water Project but could be included with a watching brief for reconsideration in the future if circumstances change.

In June 2020, Council resolved to progress discussions with the NSW Government and Southern Cross University in relation to delivering a pilot recycled water supply scheme for the Perradenya Estate. Ultimately, partnering with the NSW Government and Southern Cross University would give Council access to the funding and expertise needed to successfully deliver the scheme. Council will continue to seek funding assistance to build a pilot treatment plant (potentially at South Lismore WWTP which has recently been upgraded with advanced treatment technology). It is proposed to initially construct and operate a pilot plant to test the treatment equipment's capability to produce purified recycled water of a drinking standard. Should regulatory approval and community support be gained, the pilot plant's purified recycled water would then be supplied for use throughout the Perradenya Estate.

The objectives of the pilot plant and, if approved, the supply scheme include:

- Early and ongoing community engagement – experience with recycled water schemes elsewhere in Australia illustrates the critical importance of engaging the community to gain acceptance of purified recycled water.
- Demonstrate safe operating protocols to assist development of the regulatory framework.
- Implement an evidence-based process (including socio-economic assessments) that drives a culture of transparency and community acceptance.
- Understand emerging health risks (such as with antimicrobial resistance) and continuously improve sustainable treatment options (for energy and nutrient recovery) as well as risk management approaches.
- Demonstrate improved understanding of the design and multiple barrier processes involved in the treatment train that delivers purified recycled water of acceptable quality.
- Embed feedback mechanisms from users to define acceptable quality, socio-economic outcomes and appropriate water safety management oversight.
- Incorporate the results of the pilot scheme into systems analysis of the Northern Rivers region to understand the economic and environmental values of purified recycled water schemes.
- Provide a better understanding of regional water security given climatic and demographic change scenarios, along with the potential regional health and well-being improvements the pilot scheme is expected to bring.
- Deliver rigorous testing and validation that provides the essential data needed before significant investment is considered in large-scale purified water recycling plants and the wider use of purified recycled water for drinking purposes (both regionally and across NSW).
- Engage with all relevant NSW agencies to develop a comprehensive management framework.

At this stage, it is expected that construction of the pilot recycled water treatment plant would take up to 18 months to complete and could commence following planning stages (consultation, design and approvals). The verification and operational approval process is expected to take a minimum 10 years. However, the start of construction would depend on the timeline for funding and discussions with the NSW Government.

15.4.3 Indirect Potable Reuse

Concurrent with the DPR pilot scheme discussed above, RCC will continue to investigate the potential for IPR schemes (most likely at Lismore and Ballina/Lennox Head as discussed in Section 12) to supplement the regional water supply. Whilst there are some significant barriers to overcome to enable IPR to be considered a viable solution for securing the region's long-term water supply, the investigations over the next four-year period (2022 to 2026) will focus on:

- Further development of the scheme concepts and establishing costs for the preferred schemes.
- Liaison with the BaSC and LCC to confirm the quantity of water potentially available from the WWTPs.
- Investigating the feasibility of the recharge of groundwater aquifers.
- Providing information to the NSW Government and industry to assist in the development of a policy on IPR in NSW.

Advances in wastewater treatment technology and potentially increased acceptance of recycling schemes resulting from the pilot scheme may increase the viability of IPR schemes. This will be considered in future reviews of the Future Water Project (Section 15.3.5).

15.5 Future Source Augmentation

A Stage 3 water source would be required by 2040. During Stages 1 and 2, RCC will continue investigations into the preferred long-term source augmentation strategy which may include:

- Expansion of the groundwater schemes to include additional Tyagarah bores (Scheme 2, 5.0 ML/d) or the Newrybar groundwater source (8.0 ML/d).
- Desalination of ocean feedwater (at Byron Bay or Lennox Head) as discussed in Section 11.
- A regional desalination facility with interconnection of the Tweed and RCC regional supplies. Tweed Shire Council's current strategy is to raise Clarrie Hall Dam which is expected to meet demand until 2046 and regional interconnection may be considered viable beyond that time.
- Direct or indirect potable reuse.

The key considerations will be:

- Outcomes of the implementation of stage 2 Tyagarah groundwater (scheme 1) and assessment of impacts on GDEs.
- Further bore testing at Newrybar to confirm the sustainable yields, impacts on other water users within the aquifers and water treatment and wastewater disposal requirements.
- The success of stage 1 and 2 source augmentation and requirements (yield and timing) for further augmentation.
- The outcomes of the DPR pilot scheme.
- The outcomes of the IPR investigations.
- Ongoing review and update of the Future Water Project 2060.

- The outcomes of other regional investigations including the planning for raising of Clarrie Hall Dam and the NSW Government's *Regional Water Strategy: Far North Coast*.

15.6 Stakeholder Engagement

Based on the feedback received during the public exhibition of the draft Future Water Project 2060, there is expected to be significant community interest in future stages of the strategy. RCC will develop a Stakeholder Engagement Strategy for the Future Water Project 2060 including the components listed in Table 40.

Table 40: Stakeholder engagement

Component	Timing	Aboriginal representatives	Constituent councils	Community groups and customers	Government agencies
Aboriginal cultural heritage assessment	Quarter 1, 2022 - Quarter 4, 2023	✓			✓
Outcomes of annual review of Future Water Project 2060	June each year	✓	✓	✓	
Marom Creek water supply asset study and operational agreement	Quarter 1, 2022 – Quarter 4, 2022		✓ (BaSC)		
Marom Creek WTP upgrade	Quarter 1, 2022 – Quarter 4, 2022		✓ (BaSC)		✓
Marom Creek weir supply licence and approvals	Quarter 1, 2022 – Quarter 4, 2023	✓	✓ (BaSC)	✓	✓
Alstonville groundwater licences and approvals	Quarter 1, 2022 – Quarter 2, 2023	✓	✓ (BaSC)	✓	✓
Alstonville groundwater construction and commissioning	Quarter 3, 2023 – Quarter 3, 2024	✓	✓ (BaSC)		✓
Review of RDMP	Every 4 years		✓		
Water loss management	Ongoing		✓		
Smart metering	Ongoing		✓	✓	
Review of Drought Management Plan	Every 5 years		✓		
Mid-term review of Future Water Project 2060	Every 4 years	✓	✓	✓	✓
Review of demand forecast	Every 8 years		✓		
Review of secure yield assessment	Every 8 years		✓		✓
Major review of Future Water Project 2060	Every 8 years	✓	✓	✓	✓

Component	Timing	Aboriginal representatives	Constituent councils	Community groups and customers	Government agencies
Impacts of potential future groundwater extraction on Tyagarah Nature Reserve	As required for Stage 3				✓
DPR pilot scheme	Ongoing	✓	✓	✓	✓
IPR investigations	Quarter 1, 2022 – Quarter 4, 2025	✓	✓	✓	✓
Stage 3 source investigations	Ongoing	✓	✓	✓	✓

15.7 Implementation Plan

The delivery of the preferred scenario over the next ten years is shown in Table 41 and illustrated schematically in Figure 32. Cost estimates are included in Table 42 and Figure 33. RCC costs have been estimated based on available information. These estimated costs will be continually reviewed as the IWCM Strategy is implemented.

Table 41: Future Water Project 2060 implementation (2022 – 2031)

		Stage 1				Stage 2				Stage 3	
Delivery Program year		Year 5	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2
Stage	Task/ year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Stage 1	Marom Creek										
	Alstonville groundwater										
	Woodburn groundwater	New bores									
		Existing bore 3 + WTP									
Stage 2	Tyagarah groundwater										
Stage 2 & 3	Groundwater source land acquisition										
Stage 3	IPR investigations										
	Stage 3 source planning										
	DPR pilot scheme										
Ongoing	RCC Demand management planning										
Ongoing	Water loss management										
Ongoing	Smart metering										
Ongoing	Stakeholder engagement										
Ongoing	Drought management planning										
Ongoing	Demand forecasting (incl. data acquisition)										
Ongoing	Secure yield assessment										
Ongoing	IWCM Strategy review										
Source planning, design and approvals		Construction		Demand management		Strategic planning		Verification		Operation	

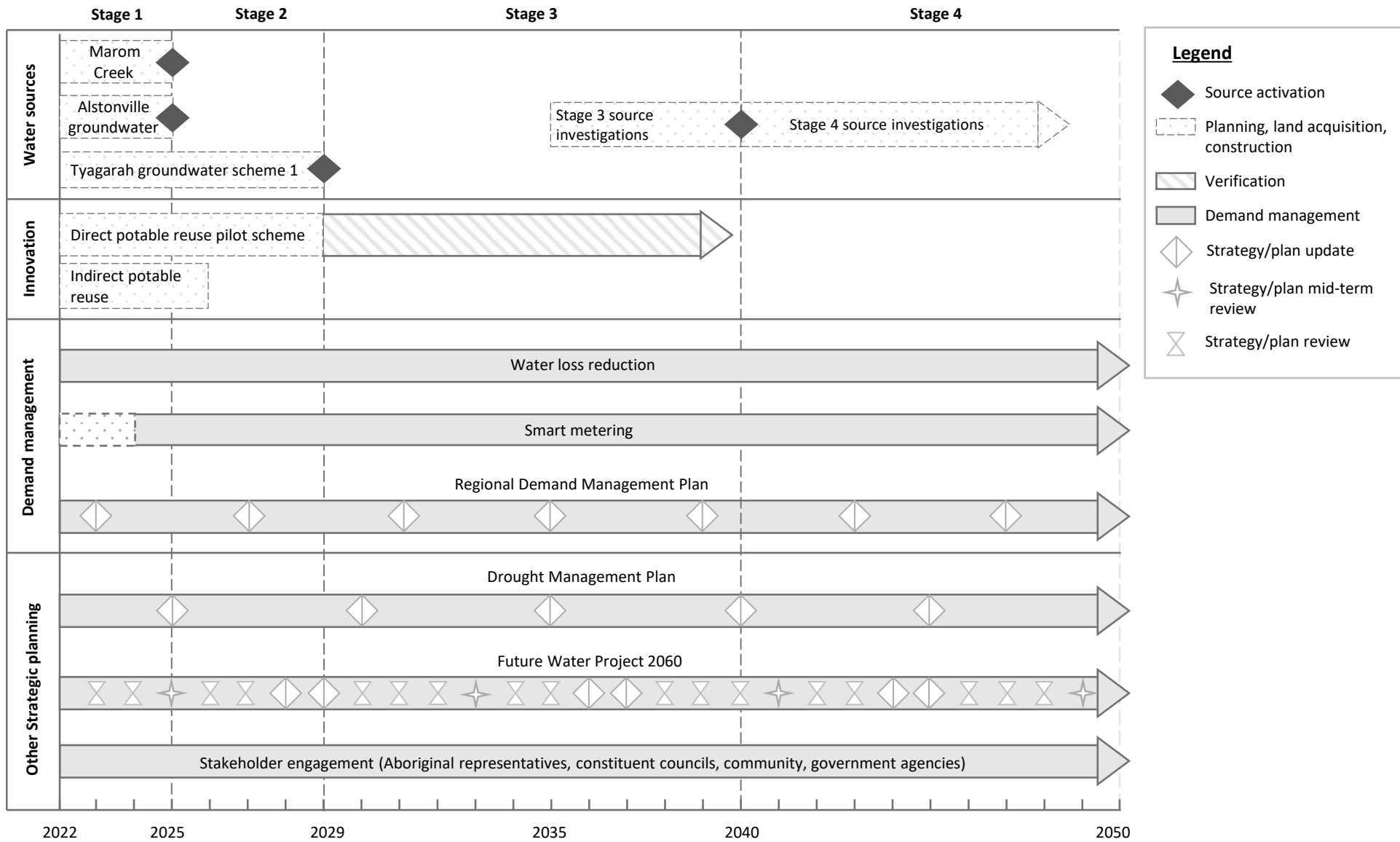


Figure 32: Future Water Project implementation planning

Table 42: Future Water Project 2060 capital and operating cost estimates (2022 – 2031)

	Delivery Program year		Year 5	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2
	Year		1	2	3	4	5	6	7	8	9	10
Stage	Task/cost (2021 \$'000) ¹	Total cost	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	Marom Creek	15,220	1,000	1,000	3,700	3,700	970	970	970	970	970	970
1	Alstonville groundwater	30,660	500	7,200	9,200	9,200	760	760	760	760	760	760
1	Woodburn groundwater (subtotal)	3,105	1,035	1,035	1,035							
	Woodburn existing bore 3 + WTP	400	200	200								
	Woodburn new bores	2,705	835	835	1,035							
2	Tyagarah groundwater	45,800	900	900	1,000	1,000	5,000	9,000	18,700	6,700	1,300	1,300
2 & 3	Groundwater source land acquisition	17,500	500	7,300	4,700	5,000						
3	IPR investigations	1,000	250	250	250	250						
3	Stage 3 source planning	2,600									1,000	1,600
3	DPR pilot scheme	7,050	600	600	600	2,000	2,000	250	250	250	250	250
Ongoing	Stakeholder engagement	500	150	100	100				100	50		
Ongoing	RCC demand management (subtotal)	8,000	1,900	1,200	1,100	1,000	600	600	600	600	600	600
	Recurrent spending	5,000	500	500	500	500	500	500	500	500	500	500
	Water loss management	1,900	500	500	500	400						
	Smart metering	1,900	900	200	100	100	100	100	100	100	100	100
Ongoing	Drought management planning	250	125					125				
Ongoing	Demand forecasting (incl. data acquisition)	160		40			40			80		
Ongoing	Secure yield assessment	150			50			50			50	
Ongoing	IWCM Strategy review	1,200				200			500	500		
Ongoing	Other - total Principal's program costs	20,165	2,937	2,939	2,782	2,589	3,091	1,442	1,507	1,529	674	674
	Totals	154,160	9,897	22,564	24,517	24,939	12,461	13,197	23,387	11,439	5,604	6,154

1. Asset renewal costs have been excluded from this table. These costs will be included in future versions of RCC's long-term financial plan.

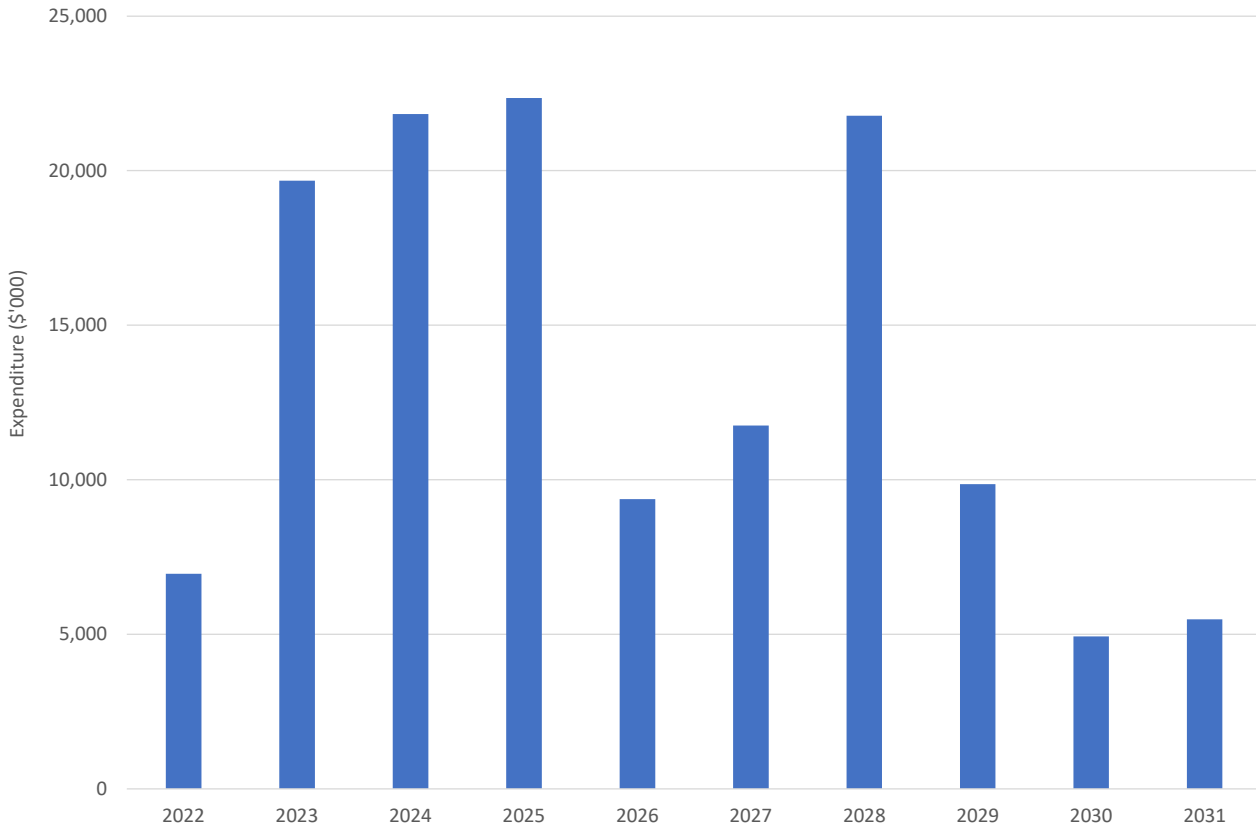


Figure 33: Future Water Project 2060 expenditure (2022 – 2031)

15.8 Adaptive Management

Implementation risks have been identified in this report for the adopted stage 1 and 2 water source options. RCC will continue to conduct detailed investigations for the preferred scenario and address these risks. Although definitive action is required in the short-term, adaptive management approaches have also been identified. RCC will consider alternative approaches as identified in Table 43 if any components of the preferred scenario become unfeasible.

Table 43: Risk assessment and adaptive management approach

Stage	Potential risk	Likelihood	Risk mitigation measures	Risk treatment options
1	BaSC does not agree to transfer ownership of Marom Creek weir and WTP to RCC for use in the regional water supply.	Possible – BaSC has expressed concern about the impact on groundwater supplies on the Alstonville plateau.	RCC has conducted a hydrogeological review including test bores at the proposed Alstonville and Converys Lane bore sites and developed a concept design (Jacobs, 2020a; 2020b). Further site investigations (bore construction and pumping tests) are required to establish the sustainable yield, however, investigations to date indicate that the sites are sustainable. The bore development would be undertaken under <i>State Environmental Planning Policy (SEPP) Infrastructure 2007</i> and would be assessed by RCC under Part 5 of the <i>Environmental Planning and Assessment Act 1979</i> . RCC would prepare a Review of Environmental Factors addressing biodiversity, heritage, groundwater, surface water, social and other relevant aspects.	<ul style="list-style-type: none"> Modify the proposed Alstonville groundwater scheme to include a separate RCC owned and operated WTP at an initial capital cost of approximately \$12 million (Jacobs, 2020b). Convert the Woodburn dry period supply (bore 3) to a primary source with three new bores, WTP and distribution to the Lower Richmond River supply system. The stage 2 supply would be required earlier to compensate for the reduced yield benefit and an alternative dry period supply would be required. Additional initial capital expenditure (approximately \$10 million) and operating costs (approximately \$200,000 p.a.) would be required. RCC and BaSC enter a long-term deed of agreement where the asset continues to be owned and operated by BaSC and the supply is formally included in the management of the regional water supply.
1	The construction of new bores at Converys Lane and Alstonville is not approved.	Possible – The existing Converys Lane bore can be replaced within 20 m of the existing bore under the existing works approval. RCC is required to purchase a new licence or transfer any unused existing allocations for the proposed new Alstonville bore.		<ul style="list-style-type: none"> The Woodburn groundwater scheme would be implemented as Stage 1 (as above).

Stage	Potential risk	Likelihood	Risk mitigation measures	Risk treatment options
1	Severe drought is experienced.	Possible – dry periods are becoming more frequent and intense with climate change.	<p>RCC will operate RCD, WRS and ECD until the level in RCD falls to 60% when restrictions will be introduced. The source operating rules identify alternative water sources which can be made operable within a short time frame including Woodburn bore 3, existing Alstonville bores and BaSC bores.</p> <p>RCC will review the drought management plan and consider the adequacy of the existing operating rules and emergency supply options.</p> <p>Package WTPs to be scoped for availability for treatment of existing groundwater sources at Alstonville and Woodburn.</p>	<p>Drought restrictions will be increased if the level in RCD continues to fall. Emergency supply options include:</p> <ul style="list-style-type: none"> Increased extraction from WRS with temporary suspension of licence requirements (potentially increasing supply for 2.5 years at restricted demand). Supply from Marom Creek WTP to Wollongbar reservoir. Temporary desalination plants deployed at coastal locations (e.g. South Ballina, Lennox Head and Byron Bay).
2	The construction of new bores at Tyagarah is not approved.	Possible – The impact on GDEs has not yet been fully assessed.	<p>Although concept designs have been developed for a borefield with capacity of 20 ML/d, the preferred scenario assumes the Tyagarah Scheme 1 borefield capacity is 7.5 ML/d. Various bore locations have been identified and RCC will continue to assess the impacts of bore construction to identify the preferred bore locations and confirm the sustainability of the scheme.</p>	<p>The Newrybar groundwater scheme would be implemented as Stage 2. Additional initial capital expenditure (approximately \$13 million) and operating costs (approximately \$640,000 p.a.) would be required.</p>

Stage	Potential risk	Likelihood	Risk mitigation measures	Risk treatment options
3	A stage 3 water source is not included in the preferred scenario.	Certain – the preferred long-term source has not been determined.	<p>The stage 1 and 2 source augmentation strategy is expected to meet demand until 2040. RCC will continue to investigate alternative supply options for stage 3 and 4. Detailed investigations have been undertaken into potential groundwater schemes (Tyagarah and Newrybar) and these are considered feasible pending detailed assessment and approval. RCC has also undertaken detailed investigations of an expanded groundwater scheme at Woodburn which is also considered feasible.</p> <p>RCC will also continue to investigate recycling and desalination options to confirm feasibility and community acceptance.</p>	<p>In addition to ongoing demand management and water loss reduction activities, RCC will undertake detailed assessment of potential long-term source options from 2029 to ensure availability from 2040 including:</p> <ul style="list-style-type: none"> • Development of additional groundwater sources at Tyagarah (Scheme 2), Newrybar or Woodburn. • Desalination at Byron Bay or Lennox Head. • Regional interconnection with Tweed (Bray Park) water supply including desalination. • Direct or indirect potable reuse (pending feasibility, approval and community acceptance).

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GLOSSARY AND ABBREVIATIONS

ADD	Average day demand
AHD	Australian height datum
ASS	Acid sulfate soil
BASIX	Building Sustainability Index
BaSC	Ballina Shire Council
BySC	Byron Shire Council
DPIE	(NSW) Department of Planning, Infrastructure and Environment
ECD	Emigrant Creek Dam
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EPBC	<i>Environment Protection and Biodiversity Conservation Act, 1999</i> (EPBC Act)
FSL	Full supply level
FWS	Future Water Strategy
GDE	Groundwater dependent ecosystem
GL	Gigalitres (one million litres)
IWP	Integrated Water Planning (process)
kL	Kilolitres
kL/a	Kilolitres per annum
kWhr	Kilowatt hours
kWhr/a	Kilowatt hours per annum
L	Litres
L/d	Litres per day
LCC	Lismore City Council
LEP	Local Environmental Plan
MCA	Multi-criteria analysis
MFL	Maximum flood level
ML	Megalitres
ML/a	Megalitres (one thousand litres) per annum
ML/d	Megalitres per day
NOROC	(former) Northern Rivers Regional Organisation of Councils
NPV	Net present value - the present value of a series of future payments
OEH	Office of Environment and Heritage
PADs	Potential archaeological deposits
PDD	Peak day demand
RCC	Rous County Council
RCD	Rocky Creek Dam
RDMP	Regional Demand Management Plan
RL	Reduced level (relative to Australian height datum)

RO	Reverse osmosis
RoTAP	Rare or Threatened Australian Plants
RVC	Richmond Valley Council
Secure yield	The highest annual water demand that can be supplied from a water supply headworks system while meeting the '5/10/10 design rule'
SEPP	State Environmental Planning Policy
SEQ	South-east Queensland
TSC	Tweed Shire Council
WRS	Wilsons River Source
WTP	Water treatment plant
WWTP	Wastewater treatment plant

Appendix 1. NET PRESENT VALUE CALCULATIONS

NPV Analysis		Scenario 2b: Dunoon Dam (50 GL)		ML/a		Production		kWh/L		Energy use kWh p.a.																																						
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40							
Stage 1 Marom Creek WTP																																																
Stage 1 Alstonville groundwater																																																
Stage 3 50 GL Dunoon Dam																																																
Lifecycle expenditure	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060							
Stage 1 Marom Creek WTP		915,875	915,875	3,663,502	3,663,500	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362	966,362			
Stage 1 Alstonville groundwater		492,000	7,120,000	9,164,500	9,164,500	818,023	820,423	822,837	825,265	827,707	880,164	832,635	835,121	837,622	840,138	842,670	895,216	847,778	850,356	2,942,949	855,558	858,184	910,825	863,483	866,158	868,849	871,557	874,283	927,025	12,739,785	882,563	885,358	888,172	891,003	3,033,853	896,721	899,608	902,514	905,439	908,383	961,347							
Stage 3 50 GL Dunoon Dam						55,384,835	82,600,757	82,600,757	293,174	293,174	333,174	342,423	391,671	440,917	490,162	579,406	665,846	715,088	764,328	813,568	1,463,768	910,424	959,661	1,008,896	1,058,130	2,998,418	1,191,037	1,240,268	1,289,497	1,338,726	1,427,953	1,438,799	1,488,024	1,537,248	1,586,471	14,958,246	1,658,564	1,707,784	1,757,003	1,806,221								
2034 capital+2%p.a. recurrent Nightcap WTP upgrade												9,691,073	9,691,073	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643	387,643			
Total Scheme		1,407,875	8,035,875	12,828,002	12,828,000	1,784,385	57,171,620	84,389,955	84,392,384	2,087,244	2,139,700	2,132,172	11,834,979	11,886,728	2,635,060	2,686,837	2,828,627	2,867,629	2,919,448	5,061,282	3,023,131	3,675,957	3,175,254	3,177,149	3,229,058	3,280,984	5,223,981	3,419,325	3,521,298	15,383,288	3,575,294	3,667,317	3,680,975	3,733,032	5,925,106	3,837,198	17,211,859	3,915,083	3,967,228	4,019,391	4,121,573							
80 year whole-of-life cost		658,907,966																																														
80 year NPV		343,939,167	2%	40 year NPV	300,668,234	Yield benefit	13,249	ML	2020-2060																																							
		267,518,613	5%		252,602,785	NPV/ML yield	19,066	\$/ML																																								
		222,665,849	7%		217,217,821																																											
Energy use		same as 2a																																														

NPV Analysis		Scenario 2b: Dunoon Dam (50 GL)																																										
Year	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80				
Stage 1 Marom Creek WTP																																												
Stage 1 Alstonville groundwater																																												
Stage 3 50 GL Dunoon Dam																																												
2034 capital+2%p.a. recurrent Nightcap WTP upgrade																																												
Total Scheme	4,163,773	4,175,992	4,228,230	4,280,487	4,332,764	8,708,598	4,402,586	4,397,799	6,483,069	4,388,396	4,987,189	4,426,377	4,373,099	17,218,654	4,364,267	18,825,645	4,355,903	4,401,687	4,347,529	4,343,429	4,379,386	4,335,796	4,333,093	6,469,224	4,325,413	20,597,718	4,267,039	4,263,403	4,259,825	4,306,306	4,292,845	4,249,444	4,246,101	4,242,818	4,239,593	7,191,502	4,272,436	4,269,390	18,216,404	4,263,478				
80 year whole-of-life cost		658,907,966																																										
80 year NPV		343,939,167																																										
		267,518,613																																										
		222,665,849																																										
Energy use		same as 2a																																										

Appendix 2. MULTI-CRITERIA ANALYSIS

Criteria	Environmental Criteria			Environmental Score	Environmental Weighting	Social Criteria			Social Score	Social Weighting	Net present value (\$ million)	Total Score per \$NPV		
	Aquatic	Terrestrial	Energy consumption			Typical residential bill	Water users	Heritage						
Description	Impact on groundwater and surface water quality and aquatic ecology and measures to offset those impacts.	Impact on terrestrial ecology and measures to offset those impacts.	80 year energy consumption (MWh)	Weighted criteria score	Weighting compared to social criteria	Impact on the typical residential bills for each Council from the revised notional cost.	Impact on other water users and measures to offset those impacts.	Impact on cultural heritage and measures to offset those impacts.	Weighted criteria score	Weighting compared to environmental criteria	NPV of capital and operating costs (80 years) at 5% discount rate	10 ^{3%} (Environmental Score + Social Score)/NPV		
Criteria weighting	33%	33%	33%	100%	50%	33%	33%	33%	100%	50%				
Scenario 1: Groundwater														
Result	Some potential impacts on GDEs. Impacts can be minimised through site selection and monitoring	Impacts can be minimised through site selection	154,000	3.00		1.21	Impacts can be minimised through site selection and monitoring	Impacts can be minimised through site selection	3.35		196	16.2		
Score	3	4.0	2.0			2.55	3.5	4.0						
Scenario 2A: Dunoon Dam (20 GL)														
Result	Significant impacts are partially offset by environmental flow regime	Significant impacts are partially offset by compensatory measures	127,000	2.67		1.30	Significant impacts are partially offset by environmental flow regime and extraction rules	Significant impacts are unlikely to be mitigated	2.16		243	9.9		
Score	2.5	2.5	3.0			2.48	2.5	1.5						
Scenario 2B: Dunoon Dam (50 GL)														
Result	Significant impacts are partially offset by environmental flow regime	Significant impacts are partially offset by compensatory measures	127,000	2.33		1.30	Significant impacts are partially offset by environmental flow regime and extraction rules	Significant impacts are unlikely to be mitigated	1.83		268	7.8		
Score	2.0	2.0	3.0			2.48	2.0	1.0						
Score out of 5	5 - highest													

Rous County Council

MNIUTES OF ORDINARY COUNCIL MEETING

16 December 2020

1. OPENING OF THE MEETING

Meeting commenced at 1.09pm

Preamble

In accordance with clause 5.21 of the Local Government Act 1993, attendees at the Council meeting were advised by the Chair that the meeting was being live streamed. The following points were noted by the Chair:

- *All speakers should refrain from making any defamatory comments or releasing any personal information about another individual without their consent.*
- *Council accepts no liability for any damage that may result from defamatory comments made by persons attending meetings. All liability will rest with the individual who made the comments.*
- *This meeting must not be recorded by others without the prior written consent of the Council in accordance with Council's Code of Meeting Practice.*

In attendance:

Councillors (at Molesworth Street, Administration Office, Lismore, NSW):

Keith Williams (Chair), Sharon Cadwallader (Deputy Chair), Basil Cameron, Darlene Cook, Vanessa Ekins, Sandra Humphrys, Robert Mustow and Simon Richardson.

Staff (at Molesworth Street, Administration Office, Lismore, NSW):

Phillip Rudd (General Manager), Guy Bezrouchko (Group Manager Corporate and Commercial), Helen McNeil (Group Manager People and Performance), Andrew Logan (Group Manager Planning and Delivery), Adam Nesbitt (Group Manager Operations) and Noeline Smith (minute taker).

The Chairperson acknowledged and thanked those that provided deputations during the Public Forum held prior to the Council meeting:

- Cindy Roberts (speaking against - Agenda item 7i)
- Bianca Urbina (speaking against - Agenda item 7i)
- Duncan Dey (speaking against - Agenda item 7i)

2. ACKNOWLEDGEMENT OF COUNTRY

Council showed its respect and acknowledged the Traditional Custodians of the Land of all Elders past, present and emerging, on which this meeting took place.

3. APOLOGIES AND LEAVE OF ABSENCE

Nil.

4. CONFIRMATION OF MINUTES

i). Ordinary Council meeting 21 October 2020

RESOLVED [56/20] (Cadwallader/Cameron) that the minutes of the ordinary meeting held 21 October 2020 be confirmed as presented.

5. DISCLOSURE OF INTEREST

Nil.

6. NOTICES OF MOTION

i). Updating materials for the Northern Rivers Watershed Initiative

RESOLVED [57/20] (Williams/Cadwallader) that Council contribute \$5,000 sourced from within the existing ARC Linkage budget allocation towards a joint project with Whian Whian Landcare and Southern Cross University (SCU) to update natural flood mitigation materials and references used to support the Northern Rivers Watershed Initiative (NRWI).

ii). Barriers to rainwater tank installations

RESOLVED [58/20] (Cadwallader/Richardson) that staff investigate and report back to Council the opportunities to maximise water savings associated with the residential rainwater tank rebate program. In particular, rebates for second water tanks with connections to toilets and washing machines, and also, connection to washing machines and toilets of existing tanks.

7. GENERAL MANAGER REPORT

i). Rous Regional Water Supply – Integrated Water Cycle Management Strategy Adoption (Future Water Project 2060)

MOVED (Ekins/Cameron) that Council:

1. Receive and note the public exhibition review document Rous County Council Future Water Project 2060 Public Exhibition Outcomes. Note that 90% of submissions opposed the Dunoon Dam and the receipt of the Traditional Owners statement of opposition. Note that submissions to the public exhibition process are available on the Rous County Council website.
2. Authorise the General Manager to cease all work on the Dunoon Dam and provide a report on the orderly exit from Dunoon Dam as an option in the Future Water Project, including revocation of zoning entitlements and disposal of land held for the purpose of the proposed Dunoon Dam.
3. Direct the General Manager to revise the draft Integrated Water Cycle Management (IWCM) to reflect the following preferred strategy:
 - a. Scenario 1 IWCM report - groundwater
4. Schedule a special meeting of Council on Wednesday, 17 March 2021 to consider the revised draft IWCM Strategy for public exhibition for a period of eight (8) weeks.
5. Authorise the transfer of \$200,000 from bulk water reserves for the 2020/21 financial year to progress the above.

6. Undertake the following actions as described in Section 4 of this report:

i) Immediate actions

- a) Water Loss Management Plan
- b) Smart Metering
- c) Marom Creek WTP and Alstonville groundwater site
- d) Marom Creek WTP upgrade
- e) Alstonville groundwater site
- f) Woodburn groundwater coastal sand scheme

ii) Ongoing action

- a) Enhanced demand management and water efficiency program

iii) Innovative action

- a) Progress Perradenya Estate pilot purified recycled water scheme and work with relevant stakeholders to design a long-term public education campaign to increase awareness and acceptance of indirect potable reuse (IPR) and direct potable reuse (DPR).
 - b) Investigate concurrently IPR and DPR schemes utilising effluent from Ballina, Lennox, south and east Lismore wastewater treatment plants (preferred options for water reuse identified in the CWT report).
7. Note that environmental, ecological, cultural heritage and economic impacts were identified during the development of the IWCM and were also raised as concerns during the public exhibition period and will remain key considerations going forward.
8. Note the progress of discussions with Ballina Shire Council regarding the potential transfer or lease of Marom Creek Water Treatment Plant (WTP) and that a further report will be provided.
9. Authorise the General Manager to write to the constituent councils inviting participation in the Rous Smart Metering project commencing 1 July 2021.
10. Seek a meeting with relevant State Government Ministers and Local MPs to expedite any regulatory and legislative or funding approvals required to implement IPR and DPR schemes.

MOVE INTO COMMITTEE OF THE WHOLE

RESOLVED [59/20] (Ekins/Cook) that Council move into Committee of the Whole (1.40pm).

MOVE OUT OF COMMITTEE OF THE WHOLE

RESOLVED [60/20] (Cameron/Cadwallader) that Council move out of Committee of the Whole (2.20pm).

The **MOTION** on being put to the meeting was **CARRIED**.

RESOLVED [61/20] (Ekins/Cameron) that Council:

1. Receive and note the public exhibition review document Rous County Council Future Water Project 2060 Public Exhibition Outcomes. Note that 90% of submissions opposed the Dunoon Dam and the receipt of the Traditional Owners statement of opposition. Note that submissions to the public exhibition process are available on the Rous County Council website.
2. Authorise the General Manager to cease all work on the Dunoon Dam and provide a report on the orderly exit from Dunoon Dam as an option in the future water project, including revocation of zoning entitlements and disposal of land held for the purpose of the proposed Dunoon Dam.
3. Direct the General Manager to revise the draft Integrated Water Cycle Management (IWCM) to reflect the following preferred strategy:
 - a. Scenario 1 IWCM report - groundwater
4. Schedule a special meeting of Council on Wednesday, 17 March 2021 to consider the revised draft IWCM Strategy for public exhibition for a period of eight (8) weeks.
5. Authorise the transfer \$200,000 from bulk water reserves for the 2020/21 financial year to progress the above.
6. Undertake the following actions as described in Section 4 of this report:
 - i) Immediate actions
 - a) Water Loss Management Plan
 - b) Smart Metering
 - c) Marom Creek WTP and Alstonville groundwater site
 - d) Marom Creek WTP upgrade
 - e) Alstonville groundwater site
 - f) Woodburn groundwater coastal sand scheme
 - ii) Ongoing action
 - a) Enhanced demand management and water efficiency program
 - iii) Innovative action
 - a) Progress Perradenya Estate pilot purified recycled water scheme and work with relevant stakeholders to design a long-term public education campaign to increase awareness and acceptance of indirect potable reuse (IPR) and direct potable reuse (DPR).
 - b) Investigate concurrently IPR and DPR schemes utilising effluent from Ballina, Lennox, south and east Lismore wastewater treatment plants (preferred options for water reuse identified in the CWT report)
7. Note that environmental, ecological, cultural heritage and economic impacts were identified during the development of the IWCM and were also raised as concerns during the public exhibition period and will remain key considerations going forward.
8. Note the progress of discussions with Ballina Shire Council regarding the potential transfer or lease of Marom Creek WTP and that a further report will be provided.

9. Authorise the General Manager to write to the constituent councils inviting participation in the Rous Smart Metering project commencing 1 July 2021.
10. Seek a meeting with relevant State Government Ministers and Local MPs to expedite any regulatory and legislative or funding approvals required to implement IPR and DPR schemes.

Voting against: Crs Cadwallader, Humphrys and Mustow.

Meeting adjourned at 3.19pm. Meeting resumed at 3.25pm.

8. GROUP MANAGER CORPORATE AND COMMERCIAL REPORTS

i). Retail water customer account assistance

RESOLVED [62/20] (Cadwallader/Humphrys) that Council, in accordance with section 356 (1) of the *Local Government Act 1993* and its 'Retail Water Customer Account Assistance' policy, approve financial assistance as listed in Table 1 of the report.

ii). Interest on overdue water charges

RESOLVED [63/20] (Cook/Cadwallader)

1. Approve the interest rate of 0.0% on overdue water charges for the period 1 January 2021 to 25 March 2021 to align with COVID-19 pandemic - recovery of unpaid rates covered under section 747AB of the *Local Government Act 1993*; and
2. Approve further extension of the 0.0% interest on overdue water charges should the NSW Office of Local Government further extend the prescribed period for COVID-19 pandemic - recovery of unpaid rates.

9. GROUP MANAGER PLANNING AND DELIVERY REPORT

i). Deferral and refund of developer contributions – Friends of the Lismore Botanic Gardens

RESOLVED [64/20] (Cadwallader/Ekins) that Council, under clause 2.5 of Council's Development Servicing Plan 2016, approve the deferral and refund of the Rous County Council developer contributions levied to Friends of the Lismore Botanic Gardens Inc. in relation to DA 5.2019.348.1.

10. GROUP MANAGER OPERATIONS REPORT

i). St. Helena trunk main upgrade Stage 2 – Supply and Delivery of Pipes and Materials Contract

RESOLVED [65/20] (Cadwallader/Humphrys) that Council:

1. Accept the tender submitted by Steel Mains Pty Ltd, in the Recommended Tender Amount of \$758,810 (excluding GST).
2. Approve an additional amount of \$113,822 (excluding GST) – being 15% of the contract amount, as an allowance for Schedule of Rate items and/or variation due to unforeseen circumstances.

11. GROUP MANAGER PEOPLE AND PERFORMANCE REPORT

i). Audit, Risk and Improvement Committee – meeting update October and November 2020

RESOLVED [66/20] (Cameron/Cook) that Council:

1. Receive and note the attached minutes of the Audit, Risk and Improvement Committee meeting of 19 October 2020 and 23 November 2020.
2. Approve the revised Audit, Risk and Improvement Committee Charter at Attachment 3.

12. INFORMATION REPORTS

RESOLVED [67/20] (Cadwallader/Mustow) that Council receive and note the following information reports:

1. Investments – November 2020
2. Water production and usage – October and November 2020
3. Reports/actions pending
4. Annual 'Model Code of Conduct Complaints Statistics' report
5. Debt write-off information summary

13. CONFIDENTIAL REPORTS

MOVE INTO CLOSED COUNCIL

RESOLVED [68/20] (Cook/Cadwallader) that Council move into Closed Council to consider the following matter and the meeting be closed to members of the public and press based on the grounds detailed below:

Report	St. Helena trunk main augmentation – Stage 2 construction contract
Grounds for closure	Section 10A(2)(c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposed to conduct) business.
Public interest	Public discussion would not be in the public interest due to disclosure of commercial information.

RESUME TO OPEN COUNCIL

RESOLVED [69/20] (Mustow/Cameron) that Council move to Open Council.

The General Manager read the following resolution of Council:

i). St. Helena trunk main augmentation – Stage 2 construction contract

RESOLVED [70/20] (Cadwallader/Cook) that Council:

1. Accept the tender submitted by Ledonne Constructions Pty Ltd, in the Recommended Tender Amount of \$11,721,268.64 (excluding GST) with the inclusion of the Optional Additional Work for the Coopers Creek Crossing.

2. Accept the cost saving of \$24,000.00 (excluding GST) offered by Ledonne Constructions Pty Ltd if the Letter of Award is issued prior to the completion of Stage 1 by Ledonne Constructions.
3. Approve an additional amount of \$1,758,190.00 (excluding GST) – being 15% of the contract amount, as contingency for additional Schedule of Rate items and/or variations due to latent conditions/unforeseen circumstances.

14. MATTERS OR URGENCY

Nil.

15. QUESTIONS ON NOTICE

Nil.

16. CLOSE OF BUSINESS

There being no further business the meeting closed at 3.55pm.

Attachment 2