

ORDINARY MEETING 29 APRIL 2015	3
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WATER SECURITY ADVISORY GROUP – FINAL STRATEGY REPORT

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RECOMMENDATION:

That Council:

1. **Receives and notes the ‘Water Security Strategy – Final Report’ dated March 2015 as adopted by the Water Security Advisory Group and formally thanks the Group for its time and efforts in the Strategy’s preparation.**
2. **Progresses with the preparation of the WSAG Implementation Plan, which will include a detailed evaluation of the Preferred Strategy’s short, medium and long term initiatives, as well as including a communications strategy.**
3. **Will engage with relevant Ministers and Departments of the State and Commonwealth Governments, communicating Council’s strategy and seeking financial and regulatory support and recognition of the medium to long-term goals in relevant policy and legislation.**

EXECUTIVE SUMMARY:

The baseline population of the Cairns Regional Council local government area is projected to increase from approximately 160,000 to 272,000 by 2044. In addition to this baseline growth, the proposed integrated resort development of the *Aquis Resort at The Great Barrier Reef* (Aquis Resort) is expected to stimulate further growth requiring substantial additional volumes of water. Accordingly, these requirements must be considered for water supply planning.

In November 2013, Council resolved to review and update its water supply strategy of 2009 with the aim of developing a strategy for the next 30 years. To ensure the strategy reflected the community’s needs and desires, in February 2014 Council elected to form the Water Security Advisory Group (WSAG) inviting key stakeholder groups from the Cairns region to participate and contribute.

Based on the three key drivers of demand, supply and performance, the WSAG has now formulated a Water Security Strategy that it proposes is affordable, practical, and acceptable to the Cairns community and, above all, will guarantee a reliable and safe supply of water to the growing Cairns region.

BACKGROUND:

In late 2013, Cairns Regional Council started a water resource planning project called *Our Water Security*. The project included a community-based *Water Security Advisory Group (WSAG)*, together with experienced Council officers and a technical Project Team. With technical input from the Project Team, the WSAG was tasked with guiding the development of the strategy for consideration by Council.

At its core, the strategy was designed to achieve the following outcome:

Development of a long term water supply strategy that identifies a program of supply augmentations and demand management initiatives to ensure that Cairns has sufficient water to meet demand under normal and adverse environmental conditions.

Between April 2014 and February 2015, the WSAG and Project Team met on a regular basis to consider the key issues influencing the water supply needs of Cairns region. At each meeting, the WSAG was presented with a series of technical reports and assessments of current water supply system and possible alternatives for increasing the supplies, as well as direct responses to requests made during previous meetings.

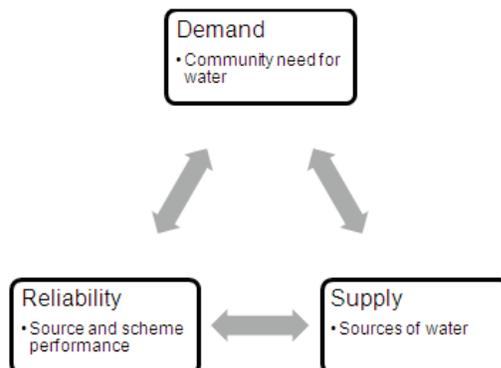
Water supply options within the Cairns Regional Council local government area were considered, as well as opportunities in adjacent catchments and areas that could provide a regional benefit. At each meeting the WSAG members often engaged in robust discussions about the issues. This in turn resulted in a rigorous planning process with the development of a robust strategy.

From this process, seven alternative water supply strategies were defined and assessed in total through a two-phase process of Normalised Multiple Objective Analysis (NMOA) and a Cost Assessment. On the basis of these assessments, two preferred strategies were selected and optimised to ultimately define the preferred water supply strategy for the Cairns region.

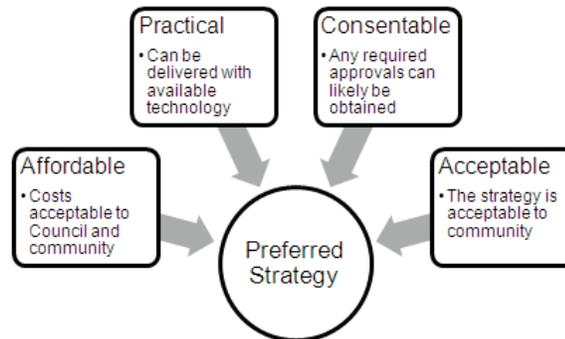
COMMENT:

Principles

As reported to Council in February 2014, the key water supply planning considerations include demand, supply, and reliability.



The key principles are that the strategy must be affordable, practical, consentable, and acceptable to the community.



These principles were unanimously adopted by the WSAG and used as the foundation for defining the project objectives and to establish a common understanding of the issues to be addressed by the stakeholders in their eventual strategy.

Objectives

Underpinning the strategy is a set of objectives selected by the group to be the most important aspects of the strategy. The group chose a total of 25 objectives for the strategy, with 10 of these constituting 'compliance' objectives where these formed the minimum requirements to be met by the strategy. That is, these must be met in any case.

Environmental Objectives

- Meet all licence conditions*
- Meet all Environmental Flow Objectives under relevant Water Resources Plans*
- Minimise extent of disturbance to World Heritage Areas
- Minimise extent of disturbance to Zone A and Zone B World Heritage Areas*
- Minimise extent of other native forest flooded or disturbed
- Minimise extent of other land flooded or disturbed
- Maintain extent of wetlands
- Minimise carbon emissions
- Minimise disturbance to populations of threatened, endangered, endemic species and/or migratory species
- Maintain or enhance groundwater resources
- Provide additional flow for environmental benefit above the WRP requirements

Technical Objectives

- Ensure compliance with defined Levels of Service Criteria*
- Ensure losses within the system are minimised to an optimal level
- Ensure that alternative water sources are identified

* Compliance objectives that must be met

Economic Objectives

- Ensure availability of water is not a constraint for new opportunities
- Aim to achieve cost recovery for water services
- Ensure the strategy delivers regional benefit
- Meet all water allocation security objectives*

Social Objectives

- Ensure the serviced community has adequate access to water
- Support community aspirations for sustainability
- Protect culturally significant sites (Indigenous and historical)*
- Consult with relevant parties with respect to Cultural Heritage*

Human Health Objectives

- Ensure water supplied is fit for purpose and poses no risks to human health*
- Preserve absolute minimum availability of water for hygiene and sanitary purposes*
- Minimise risk associated with infrastructure*

Existing Scheme Yield

The yield of the existing sources of Copperlode Falls Dam and Behana Creek was determined using 'Levels of Service' criteria and performance targets. The adopted approach is consistent with best practice within the Australian water industry and policies adopted by Queensland Government. Levels of Service (LoS) aspects include the:

- frequency (or probability);
- magnitude (or severity); and,
- duration of important 'events (e.g. restrictions, supply shortfall).

The selection of LoS criteria and performance targets underpins all subsequent options assessment and strategy outcomes. For example, the implications include:

- The required timing of augmentation to the supply system.
- The requirements of a contingency response, or planned response, in an emergency situation.
- The amount of risk and consequence to the community of a drought event.
- Ultimate cost of the day-to-day supply of water.

The group elected to maintain the same LoS currently adopted by Council. The current LoS is consistent with other water service providers in Queensland and is documented within Council's Drought Management Plan.

Key points to note regarding the LoS yield outcome for the existing scheme include:

- The available yield from the existing sources under the adopted Level of Service (LoS) criteria is estimated as 26,000 ML/a.
- The Level 1 and 2 restriction criteria are 'limiting' the LoS yield.
- There is a possible redundancy between Levels 1 and 2 in that they are performing a similar role in terms of slowing drawdown of the dam to lower levels.
- The likelihood of 'emergency' measures is estimated to have a 300 year ARI, or approximately 0.3% risk of occurrence in any single year.

Future Water Demand

Future demand for water forms the basis for determining the anticipated requirements for the 30-year term of the strategy. Forecasting future demand is strongly associated with projected population growth and associated economic activity. The potential development of the Aquis Resort and consequential additional growth also poses unique challenges for Cairns and the Council, including water supply planning and provision.

People living in Cairns and the surrounding region are familiar with the concept of using water wisely. Since 2006, Council has implemented a number of demand management strategies to ensure the more-efficient use of the existing water supplies. A climate-corrected analysis of the daily bulk water demand per resident ('capita') since 1995 illustrates that implementation of these strategies has stabilised water demand in recent years. However, the projected growth in population and economic activity is expected to have upward pressure in demand resulting in increased water requirements for Cairns.

Figure 1 illustrates the baseline drinking water demand forecasts for Cairns, both with and without the consequential impact of the development of the Aquis Resort. The key assumptions used in this forecast are:

- Medium population growth forecast, as documented by the Queensland Regional Statistical Information System (QRSIS).
- A total system water demand of 418 litres per resident person per day.
- An allowance for non-residential demand to grow in direct proportion to population growth. This represents the water demand for economic activity associated with the future population.
- An allowance for Non-Revenue Water at the current observed rate.

Although the development of the Aquis Resort has yet to receive final approval for its construction, the WSAG, based on advice from Council and the Project Team, elected to include the consequential impact of the full-scale resort in the forecast of water demand for Cairns.

It was established earlier that the combined yield from the existing sources of Copperlode Falls Dam and Behana Creek is estimated as 26,000 ML/a. The historic annual water demands illustrated in Figure 1 show that in some past years the demand exceeded the LoS yield.

Implementation of demand management strategies since 2006 has reduced and maintained water demand below the LoS yield. However, the anticipated population growth is expected to result in upward pressure on water demand and exceed the LoS yield in the near future. The baseline forecasts in Figure 1, both with and without the consequential impact of the Aquis Resort, indicate this could occur by 2017.

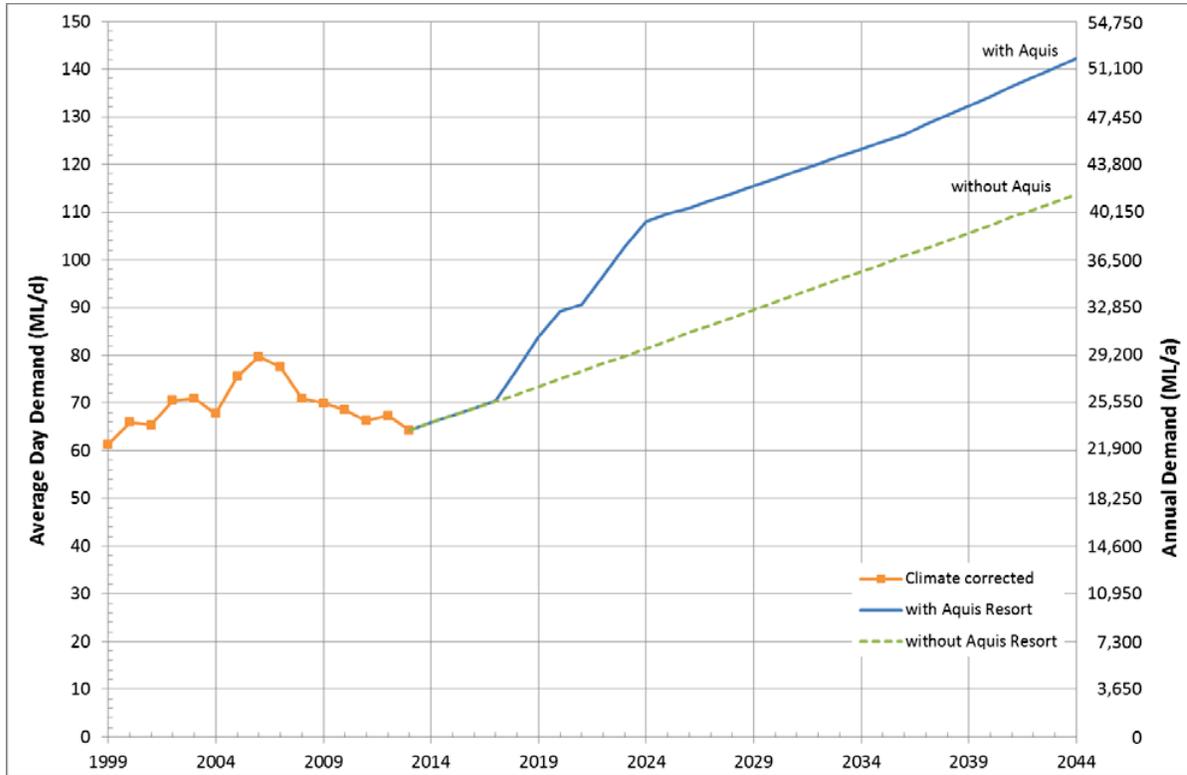


Figure 1: Potable Demand Forecast – Baseline with and without the Aquis Resort

Initiatives

The WSAG considered a wide variety of possible initiatives to further manage demand and provide supply of additional water. In this report, these are discussed under the following categories:

- Additional potable water demand reduction strategies.
- Enhancing the existing water supply system.
- Additional new water sources.
- Additional new water treatment plants.

Potential Demand Reduction Opportunities

The reduction in the total demand for potable water is a key initial step in achieving the balance between demand and supply. For this purpose, the group elected to recommend that Council pursue a number of possible initiatives as part of its Demand Management Strategy.

The Demand Management Strategy would define targets and actions based on considering the applicability to Cairns of the identified initiatives, as follows:

- Continue and enhance Council’s existing Demand Management Strategy (DMS) pro-grams, including the Water Efficiency Label-ling and Standards (WELS) Scheme and Community Education programs.

- Water efficient appliances for new residential and non-residential developments, water system pressure reduction, system leakage management, and carrying out large water user audits and retrofit programs.
- Residential water efficient appliance retrofit and school water efficiency programs.
- Commercial Cooling Tower Tune-up and Waterless Urinal Retrofit.
- Substitution of drinking water with recycled water to meet the demands of suburban irrigation and toilet flushing in new residential developments (requiring dual reticulation).
- Provide education and information to encourage all new residential developments to install rainwater tanks.
- Implementing Intelligent Water Network using advanced 'smart meters' to provide short time-step, near real-time water use readings. Such a program would involve the installation of approximately 50,000 smart meters at homes and businesses.

Enhancing the Existing Water Supply System

There is some potential to increase the volume of water yielded by Copperlode Falls Dam and Behana Creek by a relatively small amount. Although Copperlode Falls Dam is a dam for water supply and not flood mitigation purposes, its capability to safely handle and pass extreme flood events is required to be improved before 2035. This is to keep in line with contemporary meteorological methods and techniques for forecasting extreme rainfall events in the tropical areas of Australia.

Extraction from Behana Creek is constrained by existing treatment processes and pipeline capacity constraints. Upgrading these facilities would allow an increase in the volume of water available from this source within the limits of Council's existing water licence.

New Water Sources

A large number of additional water sources were investigated by the group:

- Barron River at Lake Placid – accessing a small strategic reserve for Cairns.
- Conversion of losses from the Mareeba Dimbulah Water Supply Scheme (MDWSS) to an entitlement for Cairns Regional Council.
- Development of a regional dam – nominally the Nullinga Dam proposed to be located in the Walsh River catchment to the south-west of Mareeba.
- Lake Mitchell – an existing impoundment located on private property to the north west of Mareeba. Raw water could be transferred by a pipeline to the Barron River for conveyance to Lake Placid.
- Mulgrave River – a 'run of river' extraction opportunity located at Gordonvale.
- Mulgrave Aquifer – utilisation of a small part of the aquifer system in the Mulgrave River valley.
- Mulgrave Mill entitlement – a large entitlement on the Mulgrave River currently held by the Mulgrave Mill at Gordonvale. This entitlement could be traded with Council.

- Managed Aquifer Recharge – extraction of groundwater from the Mulgrave Aquifer with recharge back into the underground system with high quality recycled water or very high quality purified recycled water.
- Environmental Flow Substitution – release of recycled water to the Mulgrave River to allow raw water extraction of the same volume.
- Babinda Mill entitlement – a ‘run of river’ entitlement on Babinda Creek associated with the closed sugar mill at Babinda. This entitlement could be purchased by Council.
- Russell River – a ‘run of the river’ extraction opportunity, located near the township of Bartle Frere south of Babinda.
- Desalination – a desalination plant possibly located on Council land at Kamerunga with the intake situated within the Trinity Inlet.

New Water Treatment Plants

Raw water must be treated to the required standard prior to entering the urban water distribution system. Increasing the volume of water supplied to Cairns will necessitate the construction of one or more new Water Treatment Plants (WTPs). The options for the likely WTPs are:

- A new WTP on Council land near Draper Road, Gordonvale.
- A new WTP on Council land at Harvey Road, Kamerunga.
- A desalination plant, also at Harvey Road, Kamerunga.

As part of Council’s previous water supply planning activities, Council has committed to construction of Stage 1 of the Draper Road WTP to improve the treatment of water sourced from Behana Creek.

Strategy Development

A water security strategy is essentially a collection of water saving programs, water supply initiatives, and operational responses (including water restrictions), with an underlying emergency plan. The initiatives need to ensure that:

1. Supply capacity is always more than demand.
2. Sources and savings are not double-counted.
3. Sources are not over-allocated.

The WSAG took the approach to compile alternative strategies of various shortlisted options that would all achieve a balance of demand and supply over the 30-year strategy period. The purpose of the alternative strategies was to investigate and understand the benefit and cost of different notions or ideas that aligned with the group’s objectives.

The initial strategies compiled for discussion were themed:

- ‘New Regional Dam’ (Strategy A)
- ‘Regional Water Efficiency’ (Strategy B)
- ‘Cost Efficiency’ (Strategy C)
- ‘Storage’ (Strategy D)

- 'Adaptability' (Strategy E)
- 'Environment' (Strategy F)
- 'Distributed Infrastructure' (Strategy G)

Further consideration by the group rationalised the list by combining notions or ideas of some themes:

- 'New Regional Dam' (Strategy A) – examines the idea of pursuing a regional dam, nominally Nullinga Dam.
- 'Repurposing Existing Sources' (Strategy B) - examines a greater focus on repurposing and reusing existing water resources. This strategy incorporates shared elements from the initial strategies themed 'Regional Water Efficiency' and 'Environment'.
- 'Cost Efficiency' (Strategy C) – examines a greater focus on a 'least cost' strategy.
- 'Adaptability' (Strategy E) - examines the idea of adaptability in terms of developing different source types across different catchments. This strategy incorporates shared elements from the initial strategy themed 'Storage'.
- 'Distributed Infrastructure' (Strategy G) - examines the concept of building flexibility to cater for unknown development patterns within the water supply scheme.

The initial five strategies are discussed in further detail in the report.

Assessment Methodology

To inform the group's decisions in respect of its preferred strategy, the Normalised Multiple Objective Analysis (NMOA) methodology was adopted together with a Cost Analysis. With the usual multiple criteria analysis, there are inherent issues such as stakeholder bias and a perennial problem with aggregating values that use different units of measurement. The adoption of the NMOA methodology successfully avoided those issues and is explained in further detail in the report.

The cost of each strategy was estimated by identifying the required infrastructure for each initiative and then estimating the capital cost and operating cost (fixed and variable) to develop the infrastructure. The following cost indices were produced to inform the comparison of each strategy:

- Capital cost
- Fixed operating cost
- Variable operating cost
- Net present value (NPV)

The net present value method allows a direct comparison between strategies as each feature differences in timing of capital costs and recurrence of annual operating and maintenance costs. This was applied over the 30-year period of the strategy.

Strategy Refinement

Insight into the advantages and disadvantages presented by each of the five potential strategies was provided to the WSAG by the NMOA assessment together with the cost assessment process. This assisted with informing a further refinement process and to realise the importance of developing a strategy around long-term goals and short-term needs, with the embedment of key decision points to guide its implementation over time.

With this view in mind, the WSAG members categorised strategy elements into their:

- ability to be delivered in the near term (within 5 years) and certainty to Cairns in providing water supply security;
- merit for further investigation and progression in the mid-term (between 5 years and 10 years);
- ability to provide contingency supply; and,
- merit for consideration, or re-consideration, in the mid to longer term.

In light of the above categorisation and insights from the assessment process, two strategies were developed for comparison that either started at the Mulgrave River or the Barron River.

Preferred Strategy

At the WSAG meeting on 9 December 2014, the WSAG considered the outcomes of the NMOA and cost assessments of the two refined strategies to arrive at a preferred strategy. The preferred strategy is described in Table 1.

Table 1: Preferred Strategy

Source and Treatment	Aspect	Notes
Copperlode Falls Dam	Existing	
Freshwater Creek WTP		
Behana Creek Intake		
Draper Road WTP Stage 1	Planned	
Augment Behana Creek Intake		
Demand Management Strategy Parts A, B, C and D	Commence as soon as practicable	
Smart Metering		
Mulgrave River Stage 1 Associated WTP: Draper Road WTP Stage 2	1st additional source	Further assessment and monitoring
Barron River Associated WTP: Kamerunga WTP Stage1	2nd / 3rd additional source	Requires further investigation before development proceeding including a comparative study regarding Barron River, Mulgrave River Stage 2 and Mulgrave Mill entitlement sources
Mulgrave Mill entitlement or Mulgrave River Stage 2		Requires further investigation Only after environmental

Source and Treatment	Aspect	Notes
Associated WTP: Draper Road WTP Stage 3		concerns investigated and resolved
Conversion of MDWSS Losses (Priority), Nullinga Dam Associated WTP: Kamerunga WTP Stage 2	Further investigation as soon as possible	WSAG forum continues
To be determined, that allows for agreed minimum requirements (100 L/p/d)	Emergency Sources	Requires Community involvement

As indicated above, development of the preferred strategy was based on the water demand growth in Cairns assuming the inclusion of the full development and consequential impact of the Aquis Resort. To be consistent with the approach of considering longer-term issues and shorter-term needs in developing the strategy, the report discusses further the preferred strategy for the scenario that the Aquis Resort does not proceed.

WSAG Recommendations

The WSAG has developed a number of recommendations that represent the sum of the technical investigations, discussions and consensus views of the advisory group. The WSAG recommends that Council endorse and adopt each of the following recommendations as a result of the consultative process.

The Cairns Water Security Strategy

1. Adopt the following objective for the Cairns Water Security Strategy:

‘Development of a long term (30+ years) water supply strategy that identifies a program of supply augmentations and demand management initiatives to ensure that Cairns has sufficient water to meet demand under normal and adverse environmental conditions.’

whilst acknowledging the preferred strategy defined in Section 10 of the report.
2. Adopt the following key principles which underpin our Strategy
 - Affordability – Costs must be acceptable to Council and the wider community.
 - Practicality – initiatives can be delivered with available technology or achievable innovations.
 - Compliant with all applicable legislation.
 - Acceptable to the wider Cairns community.
 - Is secure in that it provides water security for the Cairns Regional Council Local Government Area.
3. Adopt the following minimum requirements for the Strategy:
 - Meet all licence conditions.
 - Meet all Environmental Flow Objectives under the relevant Water Resource Plans.
 - Minimise extent of disturbance to Zone A and B World Heritage Areas.

- Ensure compliance with defined Levels of Service performance criteria.
- Protect culturally significant sites (Indigenous and historical).
- Consult with relevant parties with respect to all Cultural Heritage aspects.
- Meet all Water Allocation Security Objectives under the relevant Water Resource Plans.
- Ensure water supplied is fit for purpose and poses no risks to human health.
- Preserve absolute minimum availability of water for hygiene and sanitary purposes.
- Minimise risk associated with infrastructure.

Levels of Service

4. Reaffirm the existing Levels of Service –consisting of a four-tiered system of water use restrictions – within the Strategy.

Water Demand

5. Adopt the water demand projections on the basis of:
 - The ‘medium’ population growth forecast including the projected impacts of the proposed development of the ‘Aquis Resort at the Great Barrier Reef’.
 - A total baseline per capita water use of 418 litres per capita per day (L/c/d).

Financial implications of the strategy

6. Acknowledge that implementation of the Strategy will lead to an increase in:
 - rates and charges, which are paid by the entire community; and,
 - water and wastewater infrastructure charges, which are paid by way of developer contributions.
7. Acknowledge that increases to water and wastewater rates and charges also reflect the benefit of water security that the strategy provides to residents and economic prosperity.
8. Undertake detailed economic analyses to determine an appropriate mix of increased:
 - infrastructure charges
 - water and wastewater rates and charges
 with the aim of minimising the financial impacts on the ratepayers over the strategy timeframe.
9. Acknowledge the key decision point at years three or nine regarding further investigation and triple bottom line assessment (social, environmental, economic) between initial implementation of the Barron River and a further stage of the Mulgrave River.

10. Acknowledging the regional benefits of the preferred strategy, immediately commence negotiations with the State and Commonwealth Government to fund a proportion of the capital works and further assessment programs.
11. Acknowledging the technical and regulatory constraints, commence an assessment of the availability of the purchase of the Mill of entitlements to provide a supplementary water source.

Short-term initiatives

12. Implement Stage 1 of the Draper Road Water Treatment Plant and augmentations of the supply pipeline from Behana Creek Intake to achieve a treatment capacity of 40 ML/day and increase in scheme yield of 1000 ML/annum.
13. Develop Stage 1 of the Mulgrave River source to increase the LoS yield by at least 5,000 ML/a, including an additional stage of the Draper Road Water Treatment Plant to achieve a corresponding increase in treatment capacity of at least 19 ML/day.
14. Develop and implement a Demand Management Strategy with defined targets and actions based on considering the applicability to Cairns of initiatives identified during the WSAG process. The demand management initiatives identified are categorised based on the estimated water savings and implementation timeframes of the component initiatives, as follows:
 - a) Part A, to be implemented over a 5 year period with estimated savings of 465 ML/a, consisting of:
 - Water Efficiency Labelling and Standards (WELS) – Total Program Savings
 - Community Education Programs
 - b) Part B, to be implemented over a 10 year period with estimated savings of 2,152 ML/a, consisting of:
 - Water efficient appliances for new residential developments
 - Water efficient appliances for new non-residential developments
 - Water system pressure reduction
 - Future leakage management
 - Large water users audit and retrofit program
 - c) Part C, to be implemented over a 5 year period with estimated savings of 269 ML/a, consisting of:
 - Residential retrofit program
 - Tourist accommodation water efficiency retrofit program
 - School water efficiency program
 - Commercial kitchen 'Smart Rinse' fixtures retrofit
 - d) Part D, to be implemented over a 5 year period with estimated savings of 140 ML/a, consisting of:
 - Commercial cooling tower tune-up
 - Rainwater tank information
 - Waterless urinal retrofit
 - Sub-metering of new multi-family dwellings
15. Develop an intelligent water supply and distribution network involving implementation of smart grid technologies and 'smart meters' to provide real time water consumption data with consequential operational benefits and water savings.

Medium-term initiatives

16. Complete a further investigation and triple bottom line comparative assessment of Mulgrave River Stage 2 and Barron River Stage 1.

Should the Aquis Resort proceed, and dependent on the outcomes of the comparative assessment of Mulgrave River Stage 2 and Barron River Stage 1, the following additional medium-term initiatives may also be implemented:

17. Develop the Barron River strategic reserve source to increase the LoS yield by 5,500 ML/a. This will involve construction of the Kamerunga Water Treatment Plant to a capacity of 25 ML/day; and/or,
18. Develop Stage 2 of the Mulgrave River water source (either part of the Mulgrave Mill entitlement or Stage 1 River extraction) to increase the LoS yield by 8,500 ML/a. This will involve a further stage of the Draper Road Water treatment Plant to achieve a further treatment capacity of 33 ML/day.

Long-term initiatives

Depending on the sequence of implementing the previous initiatives, the following initiatives are recommended for concurrent investigation to confirm the best initiative for implementation over the long-term (10 to 30 years). Further investigation into their availability, impact and cost is required prior to implementation:

19. Purchase and utilise part of the 19,000 ML/a Mulgrave Mill water entitlement and augmenting the Draper Road WTP to accommodate the corresponding capacity.
20. If required, further develop the Mulgrave River water source, ensuring that the cumulative capacity of the Mulgrave River water source is less than 15,000 ML/a.
21. Economically stage the modernisation of the Mareeba Dimbulah Water Supply Scheme to enable a conversion of the operational losses for urban use by Cairns. This would involve additional augmentation of the Kamerunga WTP.
22. Investigate the possibility of the use of appropriately-treated water for other purposes, such as environmental flow substitution.
23. Access water from a future regional dam (e.g. Nullinga Dam) and, if it proceeds, with contingent augmentation of the Kamerunga WTP.

Implementation

24. Pursue regulatory and legislative approvals to support implementation of the preferred water security strategy.
25. Acknowledge the level of investigation and consultation that has been invested in development of the Strategy and endeavour to implement each recommendation to ensure the objectives of the Strategy are met.
26. Invest in ongoing communication of strategy milestones and achievements to engage the community and encourage awareness, ownership and confidence in the Cairns water supply scheme.

Strategy Review

27. Council to seek ongoing support from the Water Security Advisory Group and wider region as the water supply strategy is implemented and as the further recommended assessments are made.
28. Annually review the fundamental assumptions that underpin the strategy to ensure water supply planning remains on track to meet demand. The review should consider:
 - Unexpected changes in water requirements
 - Amendments to Water Resource Plans
 - Climatic conditions
 - Economic assumptions
 - Significant advances in emerging technologies or changes in community attitudes.
29. Formally review the Cairns Water Security Strategy every 4 years, or when there are sufficient changes in the fundamental assumptions that underpin the Strategy.

OPTIONS:

1. Progress further consideration of the preferred strategy of the Water Security Advisory Group to confirm Council's implementation plan in relation to short-term initiatives, including a framework for implementing medium-term and long-term goals.
2. Do not proceed with the consideration of the preferred strategy of the Water Security Advisory Group and seek alternative arrangements to develop a water supply strategy.

Option 2 is the least preferred option as it is not consistent with prior resolutions by Council to undertake a review of its previous water supply planning in 2009. The formation of the WSAG was a key element of the water supply planning review with the objective of involving community stakeholder inputs into the social, technical, economic and environmental aspects of the planning review.

Option 1 is the preferred option as it capitalises on the work undertaken by the WSAG and provides a substantial platform from which Council can progress towards adoption of a long term water supply strategy that ensures Cairns has sufficient water to meet demand under normal and adverse environmental conditions.

CONSIDERATIONS:

Risk Management:

Economic, Technical, Social and Environmental Objectives were key considerations of the WSAG in the formation of the preferred strategy. In progressing the consideration of the WSAG recommendations the following risk management actions are proposed:

1. Environmental Risks - it is recognised there is further investigative work required to quantify the environmental risks associated with the recommendations in particular the preferred strategy. It is also recognised there are compliance matters that need to be considered and resolved prior to implementation.
2. Social risk - it is proposed that Council continue to engage with the WSAG, and more specifically develop a Community Communications Strategy in collaboration with the Water Security Advisory Group. The primary goal of the communications strategy will be to educate and inform the broader community about the implement of the water strategy. Initially the WSAG report will be made available to the general public on Council's Website.
3. Technical risk - the Water Security strategy involves substantive technical elements and further development of the scientific and engineering aspects of the strategy need to be advanced to guarantee a sustainable solution for Council.
4. Economic risk - consistent with the objectives identified by WSAG, timing for implementing the water security strategy needs to support and not hinder the economic growth of Cairns. Periodic reviews of the strategy are therefore proposed to ensure the strategy remains consistent with forecasted growth in Cairns.

In respect of governance risk, the existing governance around the Water Security Strategy will be restructured into a Steering group overseeing the various recommendations in this report with subgroups tasked with each specific recommendation. The steering group and subgroups will operate within a Project Management Framework to ensure development and implementation tasks are conducted in a consistent, transparent and timely manner with periodic reporting to Council on progress.

Financial:

The 10 year capital works financial plan for the Water and Waste Department includes budgetary allowances for the implementation of the Water Security Strategy including elements of the proposed Demand Management Strategy and Communication Strategy. Operational Budget for 15/16 includes allocations for the operational elements of the Demand Management and Communications Strategy

Corporate and Operational Plans:

The project is aligned with the following goals of the Corporate Plan 2013 – 2018:

- 1.4 An inclusive community which is motivated and involved in a range of social, cultural, recreation and learning activities.
- 2.3 Infrastructure and utilities that facilitate and enhance sustainable growth.
- 4.1 An innovative, transparent and accountable local government.

Statutory:

Cairns Regional Council Water & Waste Department is a registered Water Service Provider as defined by the *Water Supply (Safety and Reliability) Act 2008*. Council has a statutory obligation to ensure the security of our water sources to meet projected water demands into the future. In managing its water sources, it is the responsibility of the Water Service Provider to comply with all relevant state legislation and supporting regulations.

Policy:

The project has been conducted in accordance with the following Council policies:

- General Policy No. 1:05:01 – Community Engagement Policy
- General Policy No. 1:05:12 – Advisory Committee Charter

CONSULTATION:*Water Security Advisory Group*

The approach taken by Council in forming and collaborating with WSAG in its water supply planning review represents an “involve”/“collaborate” level of engagement. Collaborating with WSAG throughout the process to date ensured that community issues and concerns are consistently understood and considered.

Membership of WSAG included industry, general community, government and specific interest groups representation. The list of full members and associate members is provided in the table below.

Water Security Advisory Group – Full Members		Meeting Attendance
Independent Chairperson	Paul Gregory	12/12
Cairns Regional Council – Mayor	Cr. Bob Manning (Neil Quinn)	12/12
Mareeba Shire Council – Mayor	Cr. Tom Gilmore	8/12
Cairns Regional Council - Chair Water & Waste Committee - Councillor Division 5	Cr. Richie Bates	12/12
Cairns Regional Council - Councillor Division 1	Cr. Steve Brain	3/12
Cairns Regional Council – Chief Executive Officer	Peter Tabulo	11/12
Cairns Regional Council – Water & Waste, General Manager	Paul Utting (Alex Ung - Acting)	12/12
Department of Natural Resources and Mines	Shannon Dempster (Glynis Or)	11/12
Department of Energy and Water Supply	Kirsten Shelly (Darren Thompson)	10/12
Advance Cairns	Trent Twomey (Mark Matthews)	11/12
Cairns and Far North Environment Centre	Angelika Ziehl	12/12
Cairns River Improvement Trust	Rob Lait	9/12
Cairns Youth Engagement and Action (YEA!)	Yuriko Nakachi- Monaei Mani Sunai-Norris	3/12
Community member	Allan Dale	10/12
Community member	Jeff Pezzuti	12/12
Community member	Suzanne Gibson	10/12
Mareeba Dimbulah Irrigation Area Council	Joe Moro	12/12
Mulgrave River Aquifer Community Reference Panel	Bruce Corcoran	12/12
Rainforest Aboriginal Peoples Alliance	Steve Purcell	12/12

Water Security Advisory Group – Full Members		Meeting Attendance
Urban Development Industry Association	Adam Gowlett	12/12
Wet Tropics Management Authority	Andrew Maclean (Bruce Jennison)	12/12

Associate members – informed.

Associate Members		Meeting Attendance
Canegrowers	Richard Hesp	1/12
Great Barrier Reef Marine Park Association	Phil Laycock	0/12
Mulgrave Mill	Peter Flanders	6/12
Queensland Health	Andrew D'Addona	0/12
Stanwell – Barron Hydro	Michael Sinclair	0/12
Sunwater	Charlie Martens	6/12

A draft Terms of Reference was prepared by Council for consideration at the initial WSAG meeting for adoption. Decision making by WSAG was generally through consensus, with voting being the fallback process where consensus cannot be reached. The ultimate adoption of the preferred strategy or critical elements of the strategy would remain with Council.

The final deliverable of the WSAG was presentation of the WSAG Water Security Strategy Final Report and a workshop presentation to Councillors on 16 April 2015. The WSAG unanimously voted to recommend the report, its preferred strategy and recommendations to Council for adoption.

Department of Energy and Water Supply (DEWS)

In addition to DEWS membership on the WSAG, DEWS were separately undertaking a state initiative to progressively work with Councils in Queensland to develop a Regional Water Security Strategy Assessment (RWSSA). This work coincided with the technical assessments being provided to WSAG by the Council Project Team and resulted in a high level of collaboration between Council and State Officers to ensure consistency with the assessment being undertaken by council as part of the Water Security Strategy and the DEWS as part of the RWSSA for Cairns.

Mulgrave River Aquifer Community Reference Panel

In addition to membership on the WSAG, representatives of the MRACRP provided specific presentation to WSAG on their position on the Mulgrave River Aquifer Scheme option. This assisted in informing the WSAG regarding the Mulgrave River Aquifer Scheme option and in the evaluation of the objectives associated with this option.

Future community engagement

As a part of the implementation plan a communications strategy will be produced to educate and inform the broader community about the preferred water strategy.

ATTACHMENTS:

'Water Security Strategy – Final Report', March 2015 (#4629524-v7). (Separately Attached)

Ben Millar
Acting Executive Engineer - Planning



Graham O'Byrne
General Manager – Water & Waste