

CAIRNS WATER SECURITY – STAGE 1

A critical investment in the future growth and prosperity of Cairns and FNQ



Relevant Federal Electorates:
Leichhardt, Kennedy

CAIRNS WATER SECURITY – STAGE 1

FEDERAL & STATE COMMITMENT REQUIRED

\$215 million to fund the construction of the Cairns Water Security – Stage 1 infrastructure project

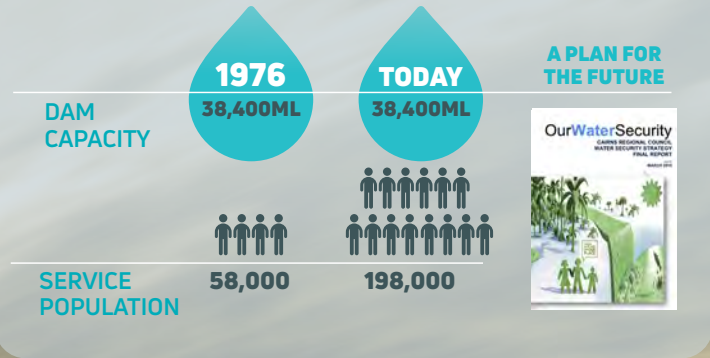
PROJECT SUMMARY

- Project Name:** Cairns Water Security – Stage 1
- Project Type:** Integrated water supply infrastructure
- Project Proponent:** Cairns Regional Council (Council)
- Project Capital Cost:** \$215 million
- Relevant State Electorates:** Cairns, Mulgrave, Barron River
- Relevant Federal Electorates:** Leichhardt, Kennedy

1658 (FTE p.a) construction phase jobs

DEMAND FOR URBAN WATER IN CAIRNS WILL EXCEED EXISTING SUPPLY CAPACITY BY 2026

CAIRNS REGIONAL COUNCIL HAS BEEN PLANNING FOR THE WATER NEEDS OF A GROWING POPULATION



Cairns Water Security Strategy (CWSS) – a clear plan to meet Cairns’ short, medium and long-term water needs

Augmentations to the water supply network are now essential to meet the needs of a growing population

The Cairns Water Security – Stage 1 project is the immediate priority to secure urban water needs well into the next decade

Sourcing water from the Mulgrave River, the project comprises intake infrastructure, supply and mains pipelines, a treatment plant and reservoirs

Like extra dam capacity but cheaper and with a lighter environmental footprint

Regional benefits: Avoids taking agricultural water from the Barron River/ Mareeba Dimbulah Water Supply Scheme

Strengthens the Cairns water supply network

The impacts of COVID-19 mean the Cairns community simply cannot afford to fund this critical regional water infrastructure project

CAIRNS’ EXISTING WATER SOURCES

COPPERLODE FALLS DAM ON FRESHWATER CREEK

- Constructed 1976.
- Dam capacity 38,400 Megalitres (ML).
- Water treated at the full-service Freshwater Water Treatment Plant (WTP) located at Tunnel Hill (constructed 1981).
- Currently supplies over 80% of Cairns’ annual water requirements.

PRIMARY SOURCE

BEHANA CREEK

- Established 1955 with subsequent improvements/upgrades.
- Run of river supply (no bulk water storage).
- Volumes constrained by seasonality, environmental flow requirements, turbidity and a sub-optimal treatment process.

SECONDARY SOURCE

THE PROBLEM

Whilst Copperlode Falls Dam has served Cairns well over the past 45 years, it will no longer be able to meet the needs of a growing Cairns population. The graph below plots the existing supply capacity within the Cairns Water Supply Scheme and the anticipated annual demand for urban water, taking into account future population growth (medium growth scenario) based on the Queensland Government Statistician’s Office (QGSO) projections.

FIG 1: EXISTING SUPPLY CAPACITY VS DEMAND

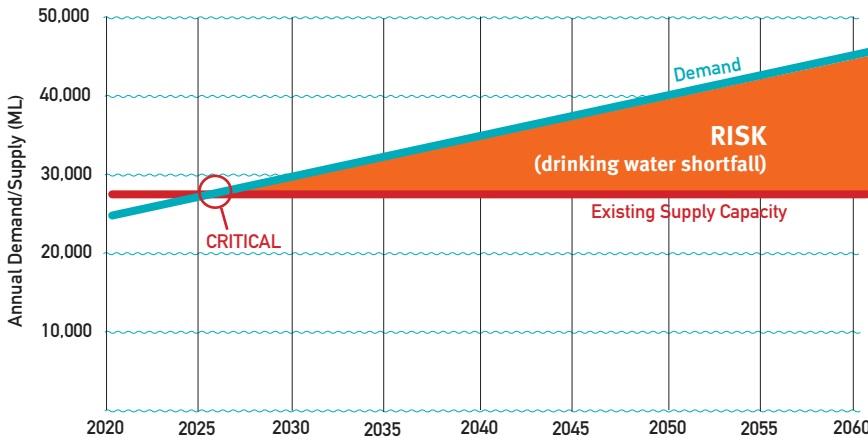


Figure 1 highlights that by the middle of this decade, the risk demand for water will outstrip supply becomes unacceptable. Without action, this could have potentially catastrophic ramifications for the Cairns community and economy including:

- Severe and more frequent water restrictions adversely impacting the quality of life for residents and visitors.
- Capping essential growth with constraints on the population and economy.
- Damage to the region’s reputation as a visitor destination.
- Loss of business and consumer confidence as a result of risk and reliability issues associated with water supply.

The existing supply sources also pose a number of critical risks/issues:

- The reliance of the Cairns community on Copperlode Falls Dam as the city’s primary water source means there is no contingency supply if this source fails or is adversely impacted by natural disasters or another event.

- There is no contingency treatment/ backup process for Council’s Freshwater WTP at Tunnel Hill. If the Freshwater WTP failed or was compromised, Council would be unable to provide treated potable water to the majority of Cairns residents until operations were re-established. This poses a significant and unacceptable risk to the Cairns community and businesses.
- A sub-optimal treatment process at Behana Creek limits the reliability and capacity of this source to supplement water supply from Copperlode Falls Dam.
- Copperlode Falls Dam is the city’s only bulk storage of urban water and has a relatively low level of capacity to annual usage (1.5 years). With only one existing alternate water source (Behana Creek) there are limited avenues to protect/preserve the volume of water held in bulk storage.

Council made a formal submission to Infrastructure Australia in 2019, highlighting the risks and challenges relating to Cairns’ medium to long-term water security as highlighted above. In part, that submission informed a new High Priority Initiative: Town and City Water Security, which was announced by Infrastructure Australia in early 2020.



CAIRNS HAS OUTGROWN ITS EXISTING WATER SUPPLY SOURCES

1976

58,000
Resident population of Cairns when Copperlode Falls Dam was built in 1976.

2021

198,000
Service population of Cairns today (167,000 residents and 31,000 visitors).

2041

281,000
Service population of Cairns by 2041.



The capacity of Copperlode Falls Dam (38,400 ML) is only the equivalent of **1.5 YEARS** of the current annual water demand in Cairns.

We need more water capacity. Without the Cairns Water Security – Stage 1 project, our local ability to provide treated drinking water to Cairns residents would be severely compromised.

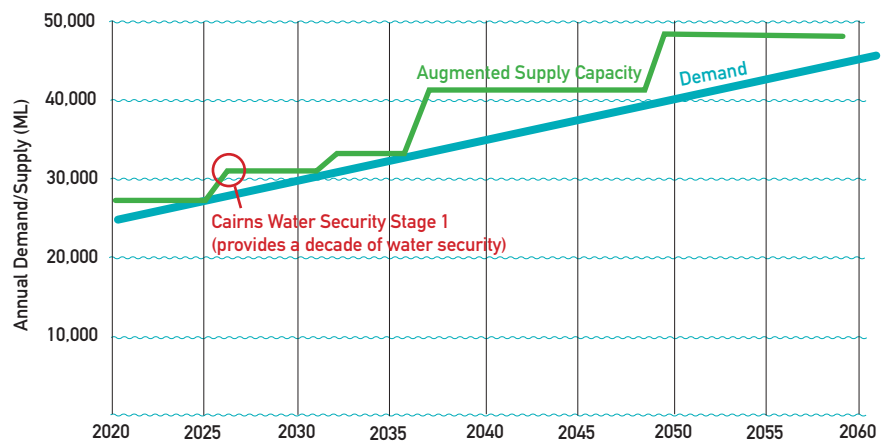
THE SOLUTION

For some time, Council has been planning for the long-term water needs of the Cairns community. In 2015, Council adopted the Cairns Water Security Strategy (CWSS). Developed independently by Council’s Water Security Advisory Group (WSAG), the CWSS identified a staged series of initiatives needed to meet Cairns’ short, medium and long-term water security requirements. Initiatives included actions to reduce water demand as well as augmentations to Cairns’ water supply network. Significant work has already been undertaken in further developing and implementing the CWSS.

Whilst demand management initiatives have delivered significant results and will be ongoing, they will not on their own enable the water needs of a growing population to be met. As a result, and in accordance with the CWSS, a series of augmentations to the Cairns water supply network are required. These augmentations are displayed in Figure 2 as the series of ‘step-ups’ in supply capacity.

Cairns Water Security – Stage 1 is the first supply augmentation required and will secure Cairns’ water needs well into the next decade. Under the CWSS, an additional dam is not required to service Cairns’ urban water needs until 2060 or beyond (based on the QGSO medium population growth scenario).

FIG 2: AUGMENTED SUPPLY CAPACITY VS DEMAND



Note: The demand forecasts included in Figures 1 and 2 in this paper incorporate additional water savings through further demand management initiatives over the period to 2060.

LOCAL RESIDENT AND BUSINESS EFFICIENCY HAS ALREADY DELIVERED REAL RESULTS



38% REDUCTION in water usage per capita over the past 15 years

On a per residential property basis, Cairns uses:

29% LESS WATER THAN TOWNSVILLE

31% LESS WATER THAN DARWIN

*based on 2019-20 data

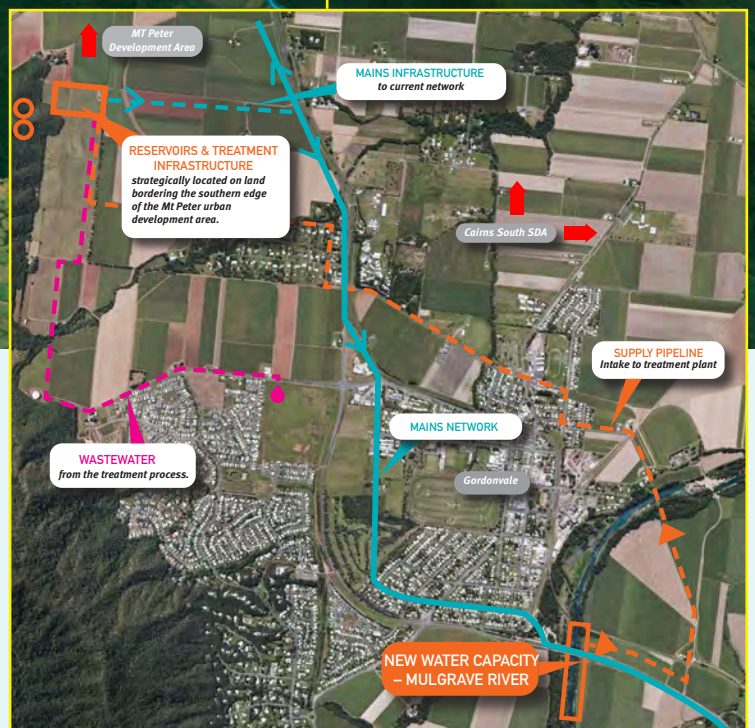
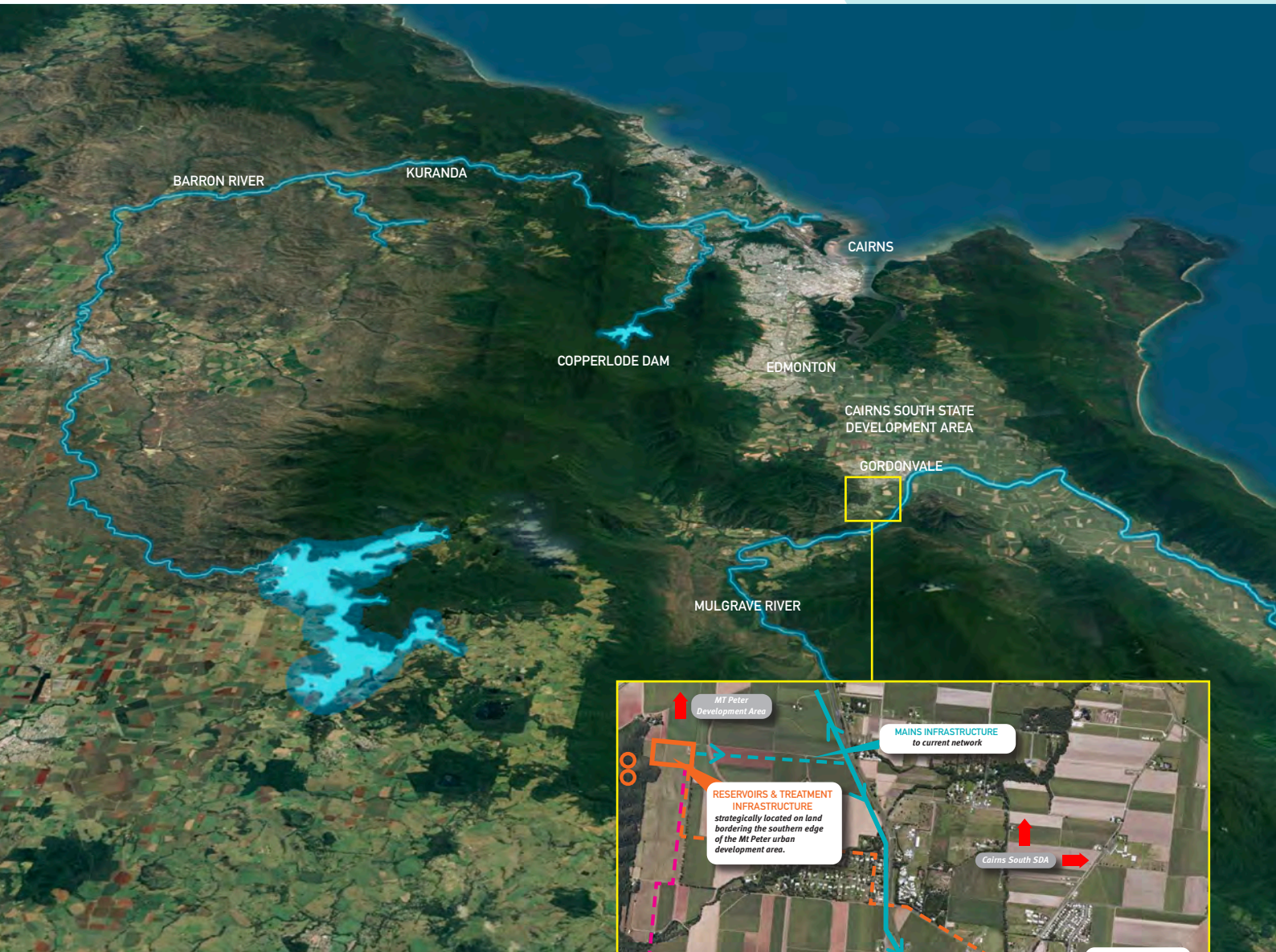
Key demand management actions to date:

- Effective metering and pricing.
- Water education and conservation programs (schools and community).
- Media and communication campaigns.
- Active leak detection, management and repair program.
- Water conservation incentives for commercial customers.
- Use of recycled water for irrigation of public gardens, school fields and sports facilities.

BUT NOW WE NEED NEW WATER CAPACITY

CAIRNS WATER SECURITY STAGE 1 PROJECT

The Cairns Water Security – Stage 1 project will provide additional water supply to support forecast population growth out to 2033 with a further expansion to the project (stage 2) able to provide water security through to 2038. The project will enable ‘new’ water to be sourced from a run of river supply in the Mulgrave River and also enable a significantly enhanced treatment process to be applied to Council’s existing Behana Creek water supply thereby increasing the volumes of water able to be drawn from this source.



Total project capital cost is estimated at \$215 million with a two-year construction timeframe (July 2024 to June 2026). The project procurement strategy has been confirmed with a single design and construct contract with early contractor involvement planned for the treatment plant, reservoir, intake and key pipeline components (intake to treatment plant) of the project. Traditional construct to design contracts will be utilised for the remaining project components (treatment plant to mains network pipeline and wastewater effluent pipeline).

PROJECT BENEFITS

- Augments the entire Cairns water supply network through connectivity to the water mains network to the north and south of Gordonvale.
- Provides water security for Cairns well into the next decade and delivers the additional water Cairns and FNQ needs to grow and prosper.
- Significantly cheaper than a new dam and with a lighter environmental footprint.
- Key regional benefit: avoids conflict with future agricultural water needs on the Atherton Tablelands by not sourcing water from the Barron River/ Mareeba Dimbulah Water Supply Scheme.
- Supports an estimated 1658 Full Time Equivalent (FTE per annum) jobs (direct and indirect) and contributes \$243 million to Gross Regional Product (GRP) during the project's construction phase.
- Enables a significantly enhanced treatment process to be applied to Council's existing Behana Creek water source increasing the reliability and volume of water able to be drawn from this existing source.
- Provides significant risk mitigation and contingency for Cairns' primary water source (Copperlode Falls Dam).
- Protects the region's reputation as an internationally renowned visitor destination by preventing water restrictions, thereby supporting the long-term prosperity of the region's tourism and allied industries.
- Provides significant risk mitigation and contingency for the city's water treatment processes/capabilities through the establishment of a second full-service water treatment plant within the Cairns Water Supply Scheme.
- Project net present value (NPV) of \$261 million and benefits to cost ratio of 1.97 based on independent economic analysis (AEC Group Ltd).
- Complements the Queensland Government's Cairns South State Development Area (1,159 hectares situated to the north of Gordonvale) which secures land for significant industrial development.
- Strategically located adjacent to the Mt Peter urban development area which will accommodate the greatest proportion of population growth in FNQ over the coming decades.



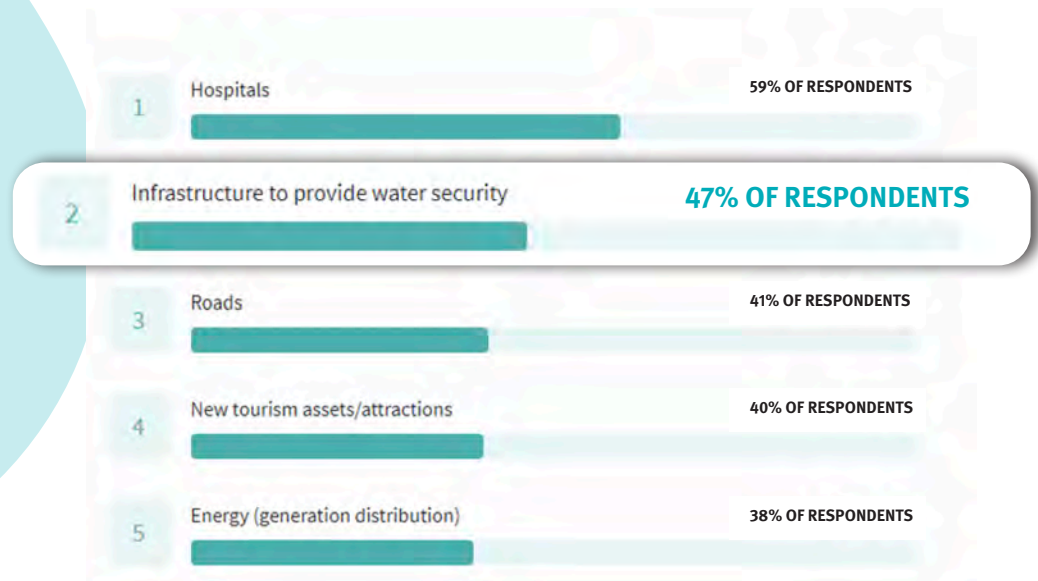
PROJECT STATUS

ACTIVITY	STATUS TIMING
Preliminary planning.	Completed
Provisions in water planning regulations to grant a water licence to Cairns Regional Council for up to 15,000 ML on the Mulgrave River.	Completed
Water Treatment Plant site – land purchase, survey and geotech.	Completed
Mulgrave River hydrology and hydraulic study.	Completed
Preliminary cost estimate review (CAPEX and OPEX).	Completed
Procurement strategy – review and endorsement.	Completed
Comprehensive testing of the Mulgrave River raw water and pilot testing of potential treatment processes.	Completed
Business case template completion to finalise finer details	In progress
Mulgrave River Intake – land purchase, survey and Geotech.	In progress
Reference design phase.	2021
Obtain a water licence to take water from the Mulgrave River.	2022
Tender and procurement.	2023-2024
Delivery – final design, construction and commissioning.	Jul 2024 to Jun 2026

The additional water yield estimated to be delivered by the Cairns Water Security – Stage 1 project (and as highlighted in Figure 2) is conservative and will be subject to more comprehensive validation during the business case and design phases.

THE CAIRNS COMMUNITY WANTS INVESTMENT IN WATER SECURITY

Council's 2020 *Our Cairns* community survey (approximately 6,800 respondents) asked what infrastructure Cairns needs to grow. Water security ranked in the top priorities.



A CORE COMPONENT OF OUR COVID-19 RECOVERY PLAN

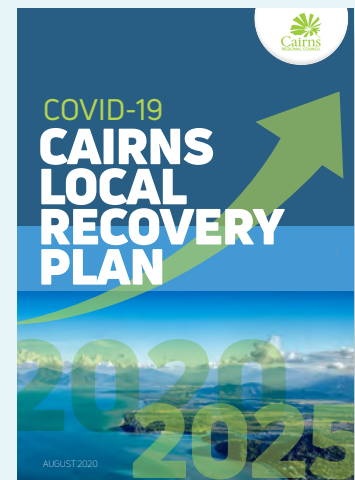
Cairns and FNQ's distance from metropolitan capitals and our reliance on international tourism and aviation connectivity means the economic impacts of COVID-19 have been severe with recovery times also likely to be substantially longer than for other parts of the country. Tourism Tropical North Queensland (TTNQ), Cairns and FNQ's Regional Tourism Organisation, estimates it will take at least five years for visitor expenditure to return to pre-COVID levels. Economic activity and employment will continue to be adversely impacted in the meantime. We cannot afford to be imposing onerous water restrictions as tourists return. The potential damage to the region's tourism sector would be catastrophic.

Council has developed the COVID-19 Cairns Local Recovery Plan which sets out the key initiatives required to support Cairns' economic recovery. Developed following significant consultation and engagement with key stakeholders including all levels of government, the plan highlights the need for investment in the critical infrastructure required to support long-term economic recovery. The Cairns Water Security - Stage 1 project has been identified as a high priority in the Plan.

Like the Queensland and Australian Governments, Council has implemented a range of initiatives to mitigate the

impacts of COVID-19 on the Cairns community and economy including:

- Financial hardship policy for ratepayers impacted by COVID-19 (interest waivers and generous repayment plans).
- Record \$181 million capital works program for 2020-21 to stimulate activity in the construction and capital works sector.
- Rate deferrals.
- A range of fee waivers and deferrals.
- An investment incentive policy (including financial incentives) to stimulate economic activity and development.



Whilst these initiatives are needed and have been welcomed, they have constrained Council's financial capacity to invest in the major infrastructure projects necessary for long-term recovery and future growth. Without external investment, the \$215 million capital cost of the Cairns Water Security - Stage 1 project would be borne by the ratepayers and residents of Cairns. Due to the lasting impacts of COVID-19, the Cairns community simply cannot afford to fund this project.



CRITICAL NEED FOR EXTERNAL INVESTMENT

The Federal and Queensland Governments have committed significant funding to water security projects in other regions. It's time to invest in the future of Cairns

CAIRNS

COPPERLODE DAM

TOWNSVILLE

ROSS RIVER DAM

CURRENT DAM CAPACITY



38,400ML



233,187ML

SERVICE POPULATION
(RESIDENTS AND VISITORS)



198,800



211,700

CAPACITY PER PERSON



0.19ML



1.10ML

RECENT FUNDING COMMITMENTS TO WATER SECURITY

FEDERAL GOVERNMENT \$0

STATE GOVERNMENT \$0

FEDERAL GOVERNMENT \$195M

STATE GOVERNMENT \$420M

Without external funding, it will be the ratepayers and residents of Cairns who bear the cost of this critical infrastructure project. The Cairns community simply cannot afford to shoulder this burden. The Federal and State Governments did not support Nullinga Dam. This is an opportunity to deliver on a key regional water project that will underpin our future prosperity.

IT'S TIME TO TURN THE TAP ON FOR CAIRNS AND FNQ

We are calling on the Federal and Queensland Governments to invest in the future of our city and our region by committing \$215 million to the Cairns Water Security - Stage 1 project, just as they have for other regional cities.

This initiative is proudly supported by the following organisations:



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