Planning our water future

Central Coast Council is planning for our future now to ensure our region has a sustainable and resilient water system that can adapt and respond to change. We need to consider new sources of water (supply) and find new ways to reduce the water we all use (demand). This series of information sheets provide an overview of the potential water supply and demand option types we are discussing with our community as we plan our water future together.

love water use it wisely

Central Coast Council

Supply option: **Water transfers**

What is it and how does it work?

Central Coast's Mangrove Creek Dam, our largest capacity dam of 190 gigalitres (GL) capacity, has a relatively small catchment (i.e. the area that drains to the dam). The primary purpose of a water transfer system is to transfer water from other locations (river sources, dams etc) to Mangrove Creek Dam in order to maximise the amount of water stored and improve the operations of the water supply network. The water transferred would have otherwise flowed down river as part of its natural flow.

Increasing the number of raw water intake points, such as from weirs to the dams, or creating the ability to transfer water from one dam to another dam, provides more flexibility and functionality for the operations of the water supply network. For instance, in the event of a water quality issue in one dam such as a blue-green algae outbreak, raw water from rivers could be harvested and diverted to the dam of choice. Similarly, our water treatment plants would also have a more diverse source of raw water, and can choose which dam or river to transfer its raw water from, once the transfer system (pumps and pipelines) are commissioned and available for operation.

What is currently in place on the Central Coast?

Council's current water transfer systems include the Mardi to Mangrove Creek Dam system which enables bi-directional transfers of raw water from Mardi Dam, directly to Mangrove Creek Dam to better utilise the large storage available in Mangrove Creek Dam. Inter-region transfers, in both directions, also occur between the Central Coast and Hunter Water Corporation via an existing connection, and the recently commissioned Warnervale pipeline.

How we're considering this option for the Central Coast Integrated Water Resource Plan

This system would involve modifications of pipework and new pumps at the existing Mangrove Creek weir pump station, as well as a new 16-20 kilometre pipeline either tunnelled or trenched to Mangrove Creek Dam upstream. Modifications to the pipeline to Somersby Water Treatment Plant would also be required to minimise energy consumption when transferring water from Mangrove Creek Dam to Somersby Water Treatment Plant.

Council is investigating an additional transfer scheme that would allow the transfer of water from the Lower Mangrove Creek Weir to Mangrove Creek Dam – which would effectively increase the catchment area of the existing dam.

Things we need to consider

Some considerations of the transfer of water from Mangrove Creek weir to dam option include: the pipeline route and construction method (trench or tunnel), the typical annual yield that Council would be able to harvest from Mangrove Creek weir, the impacts on biodiversity downstream of the river and due to the route of the pipeline, cultural heritage impacts of the Central Coast Water Sharing Plan with the NSW Government, which regulates how much water can be taken at Mangrove Creek weir.

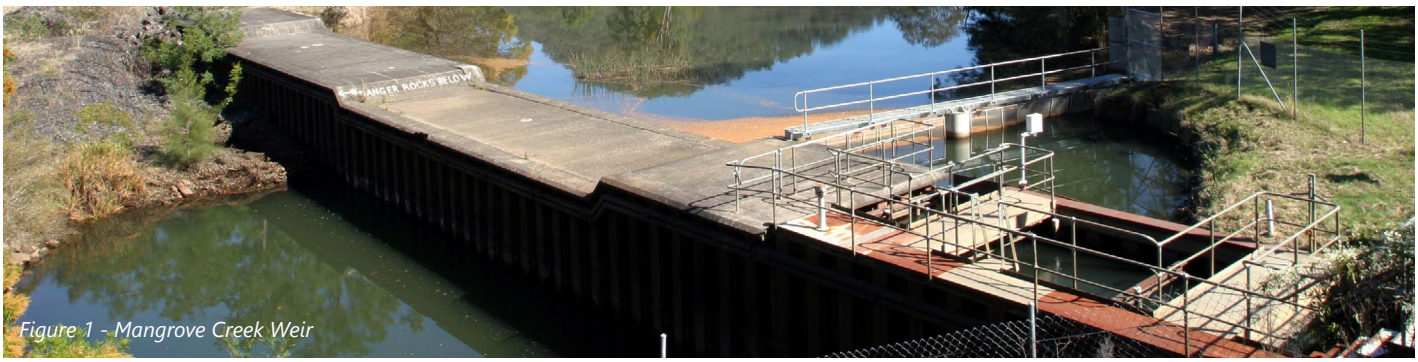

Figure 1 - Mangrove Creek Weir

Key results

The table below provides further detail about how this option is being considered in the plan.

	Category	Additional information
Potential additional water available	Medium	This option has the potential to produce around 6 megalitres per day which is in the medium range compared to other options.
Reliability and resilience	Medium	Increased storage improves the reliability and resilience of our system by storing more water during wet periods and utilising this water during periods of dry weather. Relies on rainfall and suitable water quality to fill the dams and does not ensure an ongoing supply in long and severe droughts. Stored water can be susceptible to water quality events e.g. blue-green algae. Not as readily adaptable to be staged or upgraded in future as some other options.

	Impact	Cost	Additional information
Indicative cost to build	Medium	$110 million	This cost is for using trenching as a construction method for the pipeline.
Indicative cost to operate	Low	$0.7M per year	Relatively low cost to operate.
Levelised cost	High	$14.38/kL	This is a high cost relative to other options. Levelised cost takes into account the cost to build, cost to operate, and yield.

	Impact	Additional information
Environmental impacts	High	Likely impacts on terrestrial and aquatic biodiversity, especially if alignment of pipeline is along Mangrove Creek and trenched. Environmental and biodiversity offset costs likely to be required. Low energy use and associated greenhouse gas emissions, relative to other options.
Cultural and social impacts	Medium	The pipeline along Mangrove Creek has the potential to affect nearby indigenous cultural heritage sites based on preliminary investigations to date. Provides local economic benefits during construction.
Timeframe for delivery	High	Timeframe for delivery is approximately 7 years which is relatively long compared with other options.