

PYRENEES
— S H I R E —



Beaufort Lake Action Plan

Adopted by Council 16 February 2016

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ITEM 1 – CURRENT INFRASTRUCTURE – MAINTENANCE AND RENEWAL OF ASSETS

Currently, when full, the lake is used for boating, water skiing, fishing, rowing and swimming.

The lake surrounds have a network of paths and boardwalks which are used for walking, riding, fitness, fauna and flora observation. There are presently barbeques, picnic tables and toilet facilities at the lake which allow for functions.

The items that currently have a maintenance and renewal component include:

- Water activity safety measures – buoys, boat ramp and signage
- The foreshore infrastructure including barbeques, tables, parking, toilets and shelters
- vegetation management – mowing and tree trimming
- Walking tracks with associated boardwalks and bridges

A renewal budget needs to be considered for each item of infrastructure.

The maintenance of the lake surrounds are currently the responsibility of Council. The current maintenance involves a programmed and reactive component. Maintenance includes mowing on track edge. There have been programs in the past to remove weeds and non-native species from the vegetated area to the south of the lake. Council has also undertaken programs of improvement including track construction, drainage works, bollard installation and reinstatement of infrastructure after flooding.

Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Undertake a review of existing infrastructure to assess its condition, appropriateness and opportunities to enhance the area.	The current maintenance budget for the lake is approximately \$10,000; this is predominantly used on vegetation management and toilet cleaning. The preliminary annual renewal estimates would be: <ul style="list-style-type: none"> • \$1,000 per year for water safety measures • \$2,500 per year for foreshore infrastructure • \$2,500 per year for renewal of walking track infrastructure 	Prior to June 30 2016	<ul style="list-style-type: none"> • Infrastructure list compiled • Condition rating applied • Prioritised maintenance plan in place 	Internal	The annual renewal estimate should be consolidated and added to Councils Long Term Financial plan to be spent at five yearly intervals.

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ITEM 2 - PRESERVING WATER LEVELS

Currently the lake has a very low water level precluding some of the activities and tourist benefits that have been identified.

There are a number of opportunities for Council to explore alternative sources of water and to manage how water is currently extracted from the lake. There is currently an agreement that allows extraction of water from the lake to be used as a supplementary supply for Beaufort Golf Club when water levels allow. The maximum that the golf club can take in any one year is 8 mega litres. With the lake's current level this will not occur for the 2015/16 summer period.

Beaufort Golf Club are exploring other sources of water to supplement their existing dam supply.

The catchment that currently naturally fills the lake is relatively small and is reliant on substantial rain fall to fill the lake. Losses of water from the lake occur predominantly from evaporation, seepage and in a minor respect extraction for irrigation. This is predominately due to the fact that the lake has a large surface area and shallow depth. The catchment has a number of dams upstream of the lake that need to fill prior to runoff reaching the lake.

The catchment that currently naturally fills the lake is relatively small and is reliant on substantial rain fall to fill the lake. The catchment has a number of dams upstream of the lake that need to fill prior to runoff reaching the lake. The quantum of water not reaching the lake needs to be assessed but may only be a small percentage of the requirement to fill the lake.

The lake surface area is 14 hectares and has an average depth of 1.8m when full. The lake has a maximum capacity of 260 mega litres. Evaporation levels on 30 degree plus days have been recorded to lose 10mm in depth, this equates to 1.5 ML/day loss.

Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Council undertake a high level review of upstream dams within the Beaufort Lake catchment and assess their right to divert runoff from entering the lake.	Nil additional cost Utilise existing internal resources	December 2016	Review completed	Internal	
Work with the Beaufort Golf Club to investigate and utilise alternate water sources.	Nil additional cost Utilise existing resources	Prior to June 30 2016	Alternate water source secured.	Internal	Partially completed with commitment from CHW for mains water use.

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ITEM 3 – SOURCING WATER FROM OTHER LOCATIONS

A number of alternate sources of supply were suggested through community consultation. A number of the suggestions would require further treatment of either storm water, bore water or sewerage in order to be appropriate to use as a water source for the lake. Most of these would be cost prohibitive and would require approval from regulatory authorities. Some of the solutions would require infrastructure from remote sites including piping and pumping.

Previous bore water investigation has produced low yield and moderate salinity which is not ideal for using in a publically accessible open water body.

Initial discussions with the water authority have been positive in looking for an alternative for the reuse of waste water. Treatment to a standard for putting water directly into the lake is likely to be cost prohibitive. The lake may not be an option for the use of the reuse water but there is a possibility that treated water could be used on the recreation reserve or at the Golf Club. This would reduce the losses due to irrigation.

Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Investigate capturing storm water from the Beaufort township for use at either the Golf Club or the lake.	\$5,000	December 2016 subject to funding	Investigation completed and reported to Council.	Internal	
Investigate capturing pool backwash from the Beaufort township for use at either the golf club or the lake (limited to less than one mega litre per annum during pool season).	Nil additional cost Utilise existing resources	Completed	Investigation completed and reported to Council.	Internal	
Investigate utilising water from other reservoirs within the greater Beaufort area.	Nil additional cost Utilise existing resources	Preliminary investigation completed	Investigation completed and reported to Council.	Partnership with CHW	Advice from Central Highlands Water is that township reservoirs would be inappropriate to be used for recreational lakes.
Investigate utilising treated water from sewerage treatment plant	The planning to concept stage Part cost bourne by CHW. Some monetary commitment may be required by Council.	December 2016 subject to funding	Investigation completed and reported to Council.	Partnership with CHW	
	\$2.5m Capital Infrastructure	Subject to funding.	Works completed	External	

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Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Further investigate utilising ground water including from old mine shafts within the greater Beaufort area	Unknown	Subject to funding and permissions.	Investigation completed and reported to Council.	Internal	Preliminary investigation completed with a bore being drilled in 2015 that identified high salinity levels that would be inappropriate for use in the lake.

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ITEM 4 – DEEPENING OPTIONS FOR THE LAKE

A deeper lake would be beneficial. Evaporation can only act on the surface area that is exposed. By having a deeper lake and no greater surface area the evaporation of the lake would take longer. The current lake bed is not of an even depth and as the lake dries out the surface area becomes smaller.

With only a minimal amount of water level decrease the lake's usability for certain activities is compromised. The first two activities to be compromised are rowing and water skiing. The rowing course runs diagonally from the north corner to the south corner. Presently the rowing course in the south corner when the lake is full is 0.8m deep. Rowing Australia allows for a minimum depth of 2m for rowing but has a preferred depth of 3.5m. Therefore the lake is unlikely to ever comply with requirements for a course but may be sufficient for training purposes.

Discussions with Transport Safety Victoria, who are the regulator of waterways, have indicated that the minimum recommended depth of a water body needs to be 1.6m for water skiing activities. The current locations of the buoys that indicate the extent of the safe water skiing area presently have a water depth of approximately 1m when the lake is full. Therefore if Council wishes to continue to have the lake as an area designated for water skiing it would be advisable to either reduce the area of activity or deepen the lake in the prescribed area to an even depth greater than 1.6m.

The logistics of this proposal are great but could be made efficient if the material to be removed is placed in the vicinity of the current snake island. This would have two benefits, in that there would be a reduction in overall surface area of the lake and there would be more water in the deepened section for longer dry periods.

Initial costings for deepening the current water ski area only to meet minimum depth requirements have been calculated to be between \$250,000 and \$350,000. This is based on moving approximately 23,000 cubic metres of material.

There are a number of regulatory authorities that would need to have input into any proposal along this line including investigations into aquatic fauna and flora, cultural heritage and the need for a planning permit in a sensitive waterway area. It would also be prudent to undertake a geotechnical investigation of subsurface conditions to ensure no adverse effects from undertaking such a large task.

In order to initiate a detailed plan of the task to deepen the lake a detailed survey would be required.

Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Undertake a detailed survey of the lake bed and draw up plans with costings to deepen the water ski area of the lake.	Survey of bed - \$10,000	April 2016	Survey undertaken	Internal	
	Plans and Costings - \$10,000	Initial costings completed.	Plans and costings complete	Internal	
Deepen the lake	\$300,000 Capital Cost	Reliant on external funding	Lake deepened	External	

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ITEM 5 – TOURISM OPPORTUNITIES

The Beaufort Caravan Park is strategically located on the shores of the lake and provides visitor attractions and interaction.

A Caravan Park Master Plan was undertaken in 2013 which recommended improvements to be undertaken over a five year period to the value of \$516,000. Council has invested over \$300,000 since this report was adopted. Outstanding areas for improvement include the camp kitchen and recreation facilities.

Council has undertaken a number of improvements at the Beaufort Caravan Park including purchasing of three cabins in 2015 which are strategically located on the edge of the lake. Council continues to undertake improvements at the caravan park and views visitor attraction as an important economic driver for the shire's future sustainability.

Anecdotally visitor numbers are greater when the lake has water, the opposite is also true. Therefore there is a benefit to preserving existing water or sourcing external water for the lake.

Proposed Action	Estimated Cost	Timeframe	Measure	Resources	Comments
Continue to identify and implement improvements at the Caravan Park	\$200,000	Ongoing Subject to funding.	Continue to identify and implement improvements at the Caravan Park. Refer to Caravan Park Masterplan	Internal	