

Report prepared by Arup on behalf of:



Resource Recovery 2040 Program and Business Case

Stage 2A Program Prioritisation

Reference: CW15/2022 RR2040

Final | 30 June 2023



Executive summary

Overview

The Resource Recovery Program to 2040 (the RR2040 Program) has been developed by Cairns Regional Council (CRC), providing a long-term plan to optimise Cairns' resource recovery systems over the next approximately 17 years. This report sets out the Stage 2A Program Prioritisation analysis undertaken to determine a preferred RR2040 Program from the longlist of program options identified through the prior Stage 1 Strategic Assessment (Arup, 2023).

Eight options were identified, each representing alternative pathways to contribute toward CRC's resource recovery aims over the long-term (to 2040). The program options were modelled, assessed and prioritised based on an agreed set of criteria and weightings developed in collaboration with CRC.

Preferred program

The preferred program was identified as 'Option 4 *organics collection + regional opportunities*', which focusses on maximising the separation, collection, processing and diversion of organics and other recyclables from municipal solid waste (MSW) from Cairns, as well as improvements to its Materials Recycling Facility (MRF), waste transfer stations and other assets.

This program option is preferred based on the following key drivers:

- Significant investment in organics diversion in the near-term presents the greatest opportunity for Cairns to progress toward state recycling and landfill diversion targets and is likely to deliver the greatest economic (value-for-money), social and environmental outcomes.
- The opportunity for collaboration with CRC's regional counterparts within FNQ will increase the efficiency and return on investment for Cairns, as well as deliver a greater 'whole of societal' benefit (including better achievement of the state-wide targets). This approach will align with the QLD Waste Strategy, Circular Economy principles, the FNQROC Regional Resource Recovery Plan and First Nation communities waste strategy.
- The Option 4 sub-options ranked highly against the defined criteria and differed only in terms of the location and technology adopted for organics recovery. Acknowledging that reliance on a facility located outside the CRC LGA carries higher risk and uncertainty, both should be considered in more detail at Stage 2B to confirm the scope of the first major infrastructure investment under RR2040.

Detailed cost estimates will be developed for the shortlisted options as part of Stage 2B. It is further noted while Option 4 does not limit the progression other opportunities that may become available or feasible in the future (e.g. utilisation of regional energy from waste capacity).

Need for adaptability

Acknowledging the changing technological, regulatory and economic environment, CRC must remain flexible and adaptable to external changes which may influence how and when aspects of the preferred program are delivered. Key considerations include, among others, the potential for extended operation of the Bedminster facility beyond its currently projected closure in 2026, opportunities and constraints associated with the use of existing sites which have been identified for future organics processing, and the impacts of potential future changes to policy, regulations, waste disposal levy exemptions, rates and annual payments.

Need for investment

The proposed closure of the Bedminster facility in 2026 will significantly reduce Cairns' capacity to achieve high rates of resource recovery. The Bedminster facility operates at a recovery rate of 50%, which contributes to an overall recovery rate of approximately 65% for the Cairns region. If a replacement facility is not operational by 2026, 100% of the residual waste that is currently processed at the facility will be diverted to landfill for disposal. The proposed Bedminster closure not only sets back CRC with respect to progressing toward state targets but poses large financial liability due to increasing waste disposal levy rates and decreasing local government annual payments. Achieving the state-based targets requires both a recycling rate and diversion from landfill target to be met. The Stage 2A modelling results indicate that no baseline options are able to meet the 2030 or 2040 targets, without large investment within resource recovery and long-term availability of EfW capacity for residual waste management.

To deliver the RR2040 program, CRC will be seeking investment and support from the state. The timing of available funding may support or constrain the delivery of the program outcomes and the ability to work towards the state targets. Funding levers currently being considered to support implementation of RR2040 include:

- Preparation of business cases based on a staged implementation of RR2040
- Working with the state to explore opportunities for revenues from the waste levy
- Defining how funding (both levy and other funding sources) is allocated to councils
- If required, passing on unavoidable additional costs to rate payers.

First investment options

CRC has committed to progressing the detailed options analysis for a set of high priority investments under the program. From the analysis completed, the most significant and pressing initiatives were those relating to the establishment of an alternative mechanism to collect, process and recover kerbside organics once the Bedminster facility is closed in 2026. For this reason, it was determined that first investment under the RR2040 program should be primarily targeted toward organics recovery and should therefore include:

- A significant education and behavioural change program.
- A mandatory kerbside organics collection service.
- The development of a new organics processing facility.

A longlist of first investment options were prepared as part of this report and will form the starting point for the Stage 2B Options Analysis. The details of each option is summarised in the table below:

Initiative	Project Option 1 – Base Case	Project Option 2	Project Option 3	Project Option 4	Project Option 5
Behavioural change	Business as usual	Significant engagement program from 2023			
Kerbside Collection	2-Bin System (waste & recycling)	3-bin system introduced from 2026 (waste, recycling and organics (food and/or garden waste))			
Organics Recovery & Processing	Bedminster facility closes 2026	In Vessel Composting (IVC) facility at greenfield site inside Cairns LGA	In Vessel Composting (IVC) facility at Bedminster site in Portsmith	Open Windrow Composting facility inside Cairns LGA	Open Windrow Composting facility outside Cairns LGA

Planning for other investment identified under program Option 4 (including broader improvements to education and behaviour change and CRC's transfer station and MRF assets) should also commence, however will be considered as separate projects. An element of behavioural change will be associated with the roll out of kerbside organics recycling, however CRC should continue to undertake ongoing kerbside bin contamination campaigns such as Recycle Right, Love Food Hate Waste and Keep Recycling out of Waste to manage kerbside contamination and recycling behaviours.

Next steps

The following next steps are recommended to progress the RR2040 Program:

- Option 4 CRC organic collection + regional opportunities, is adopted as the preferred program for RR2040
- Targeted stakeholder feedback is sought on the recommended option and the longlist of first investment option identified, with this feedback incorporated into the detailed options analysis.
- Potential risks and opportunities to the program continue to be monitored, for example handover arrangements for the Bedminster site and opportunities arising from the Far North Queensland Resource Recovery Plan.