

WASTE MANAGEMENT STRATEGY

Summary Strategy

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Albury City Council
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Albury NSW 2640

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PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street
North Sydney NSW 2060 Australia

T: +61 2 9427 8100
E: sydney@slrconsulting.com www.slrconsulting.com

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Glossary

Term or Acronym	Definition
AD	Anaerobic digestion
ADC	Alternate daily cover
ARC	Albury recycling centre
ATT	Advanced thermal treatment
AWMC	Albury Waste Management Centre
C&D	Construction and demolition
C&I	Commercial and industrial
CDS	Container deposit scheme
DWMC	Domestic waste management charge
EfW	Energy from waste
EIS	Environmental impact statement
EPA	NSW Environment Protection Authority
EPL	Environment protection licence
FO	Food organics
FOGO	Food organics and garden organics
IVC	In-vessel composting
LFG	Landfill gas
LPR	Licence plate recognition
MBT	Mechanical biological treatment
MRF	Materials recycling facility
MSW	Municipal solid waste
Organics	All organic materials from households and gardens, including food scraps as well as lawn clippings and garden prunings
PEF	Process engineered fuel
RAMROC	Riverina and Murray Regional Organisation of Councils, precursor to RAMJO
RAMJO	Riverina and Murray Joint Organisation, previously known as RAMROC
Recycling	Dry recyclable materials collected from the kerbside recycling service including paper and cardboard, plastics, metals, and glass
Residual Waste	Non-recyclable waste which requires alternative management, such as disposal to landfill
RDF	Refuse-derived fuel
SRF	Secondary recovered fuel
WARR	Waste avoidance and resource recovery

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EXECUTIVE SUMMARY

Vision

This Waste Strategy's vision is '80% diversion by 2030'

Albury City could achieve a diversion rate from landfill of more than 95% within ten years. This means that as little as 5% of Albury's waste could be sent to landfill before the decade is out. A target of 80% diversion by 2030 would be achievable and in line with the NSW Waste and Sustainable Materials Strategy 2041.

How We Are Going to Get There

Waste Stream Options

There are three main waste streams Albury City needs to develop processing options for. These are:

- Residual Waste – anything that is not organics, recyclable or a material that can be recovered and comes from kerbside, commercial and industrial (C&I) and construction and demolition (C&D) sources.
- Organics – food and garden organics from kerbside, municipal and C&I sources and biosolids
- Recoverables – materials, other than organics, separated at the Albury Waste Management Centre (AWMC) and from residual and organics processing that includes recyclable paper, cardboard, metals, mattresses and C&D material, plastics, textiles and rubber and timber.

Priority Infrastructure

- A C&D materials recycling facility (MRF) currently under development.
- An in-vessel composting (IVC) facility to accept organics material, including biosolids and commercial food
- By 2031-2032 a refuse-derived fuel facility, mattresses and soft furnishing recycling facility, glass crushing facility and timber chipping and shredding facility.
- A mechanical biological treatment facility to accept residual waste from Albury, Wodonga, other councils' kerbside streams, the AWMC drop off area and C&I waste.

Implementation Action Plan

There are 54 key actions for implementation proposed in the Waste Strategy classified by strategic theme. Each action includes an indicative cost and timing of one to five years. A selection of some of the more consequential actions under each strategic theme are listed below:

- Strategic Theme 1: New Infrastructure Identification and Development
 - Engage with regional partner councils

- Assessment of organic waste management options
- Implementation of in-vessel composting (IVC)
- Implementation of mechanical biological treatment (MBT)
- Commission operation of C&D MRF following construction
- Strategic Theme 2: Existing Infrastructure Optimisation
 - Develop comprehensive landfill cell fill plans
 - Review entire AWMC site configuration and produce master plan
 - Assess need for future landfill resource
 - Develop Landfill Closure Plan
- Strategic Theme 3: Provision, Configuration and Delivery of Services
 - Assess opportunities to expand range of kerbside collected materials
 - Review Gate Fee Study
- Strategic Theme 4: Waste Reduction, Education and Community Engagement
 - Develop AWMC Communication Plan
 - Composition analysis of mixed residual waste streams received at AWMC
 - Develop AWMC sustainability park plan
 - Develop an accurate and consistent whole waste system database
 - Extend Halve Waste to contract councils

Financial

Table 1 Infrastructure cost summary

		IVC	MBT	RDF	Total
Total capital costs over 25 years	\$M	\$19.5	\$18.8	\$3.3	\$41.6
Total operational costs over 25 years	\$M	\$143.9	\$190.6	\$264.3	\$598.8
Total cost over 25 years	\$M	\$163.4	\$209.4	\$267.6	\$640.4
Total income over 25 years	\$M	\$134.2	\$142.1	\$85.3	\$361.6
Total value of landfill savings over 25 years	\$M	\$249.9	\$274.1	\$267.7	\$791.7
Total benefit NPV ¹	\$M	\$136.8	\$128.2	\$54.9	\$319.9

The table shows that all infrastructure facilities will provide positive returns over their 25 year lives and that there would be a total net benefit of \$319.9 million for Albury City.

¹ Discount rate for NPV calculations plus inflation - 3.1%. IPART Local Government discount rate - 26 February 2021

1 Introduction

Albury City Council's Waste Management Strategy consists of this Summary Strategy and a supporting Technical Report. The more detailed and substantial Technical Report supports the Summary Strategy and has been prepared as a separate document. The Technical Report includes the calculations, assumptions, research, and background information that underpin the results, conclusions and actions provided in this Summary Strategy.

The Summary Strategy includes the following sections:

- Section 2 - Who We Are – details of the Albury Community
- Section 3 - Where We Are Now - details of Albury's current waste management quantities, systems, infrastructure and performance
- Section 4 – How We Are Going to Get There – the vision and purpose of the Strategy and Albury City Councils waste management objectives
- Section 5 - How We Are Going to Get There – details of the options for the management and treatment of waste streams and the infrastructure required to achieve the aims outlined in Section 5
- Section 6 - Financial – estimates of the costs to implement the actions proposed in this Strategy
- Section 7 - Recommendations and Implementation Action Plan – more detailed information on the actions and timings required to achieve the aims outlined in Section 7.

2 Who We Are

2.1 Albury City

Albury City is in the Riverina region of south-eastern New South Wales. Riverina is an agricultural area, and Albury is one of the major population and service centres.

Together with its neighbouring Victorian city of Wodonga, Albury acts as the primary manufacturing, retail, education, health, administrative and cultural centre for a wider catchment population of up to 200,000 residents. Albury is located on the banks of the Murray River, approximately 330 km from Melbourne and 550 km south of Sydney (Figure 1). The twin cities offer a resilient and diversified economy valued at \$7.5 billion annually, where businesses can deliver more for less and where high-growth national companies are already forging success stories.

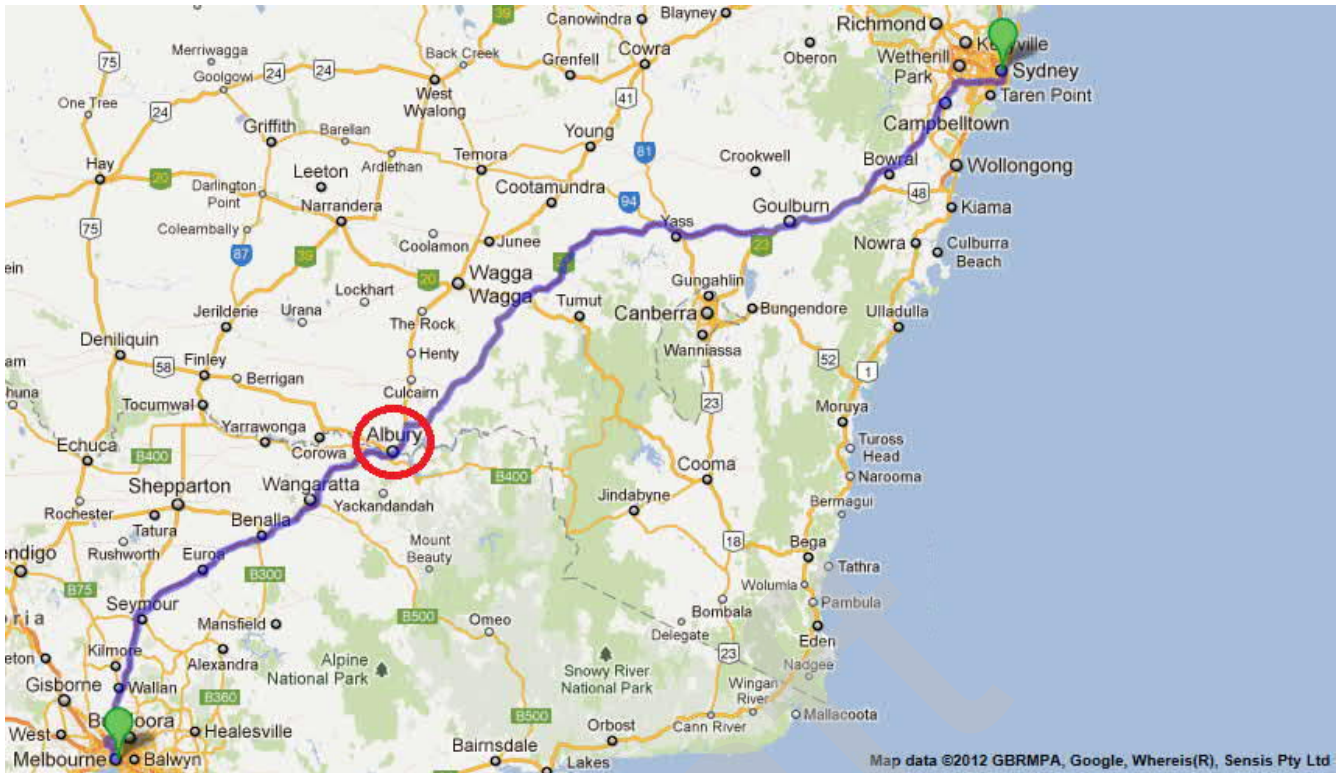


Figure 1 – Location of Albury

Albury City has an area of about 306 km² with an estimated population of over 55,000 people living in more than 23,000 households.² The population of Albury City is expected to pass 67,000 by 2036³, representing an increase of around 30% over 20 years.

2.2 Regional Position

Albury and Wodonga are a single community and have developed the Two Cities One Community initiative to achieve a number of goals under the four pillars of 'Our Economy, The Environment, Our Community and Partnering in Leadership'.

The Two Cities One Community Strategic Plan references the existing collaborative approach to waste management with Albury City providing waste disposal and recycling services at the Albury Waste Management Centre (AWMC) for Wodonga and neighbouring residents and the regional waste collection contract and Halve Waste initiative, which the two cities share. This Waste Strategy will also help achieve some of the goals of the Two Cities One Community Strategic Plan.

Albury City is a member of the Riverina and Murray Joint Organisation (RAMJO) waste group which covers the Murray and Western Riverina regions and currently represents the interests of 11 member councils in southern NSW.

² Australian Bureau of Statistics, Census of Population and Housing 2011 and 2016. Compiled and presented by .id (informed decisions).

³ Ibid. i

3 Where We Are Now

3.1 Albury City's Waste Services

The waste management services provided by Albury City are shown in Table 2 below.

Table 2 Albury City's waste services

Stream	Collection Service Provided	AWMC
Residential garbage	Kerbside collection in 140 L bin fortnightly	Drop off free with vouchers
Residential recyclables	Kerbside collection in 240 L bin fortnightly	Drop off free of charge
Residential food and garden organics	Kitchen caddy and compostable liners, kerbside collection in 240 L bin weekly	
Litter bin collection	Albury City collects	
Illegally dumped rubbish	Albury City collects	
Bulky waste	Home based collection for residents	Collection and drop off service using vouchers
Problem waste	No collection service provided	Drop off free of charge
Commercial waste	No large scale collection service but small businesses can have same service as residents	Drop off for a fee

3.2 Current Waste Generation

Albury City's total municipal waste generation along with commercial and construction waste delivered to the AWMC, is summarised in Table 3. This includes total quantities of waste by collection method and waste stream, along with overall quantities diverted and disposed of to landfill.

Table 3 Waste Quantities by Collection Type and final Destination, 2019-2020

Category	Quantities Collected (t)				Destination		Diversion Rate
	Kerbside	Drop-off	Other	Total	Diverted	Landfilled	
Recycling	4,545	3,242	232 ⁴	8,019	8,019	359	95.7%
Organics	10,246	3,562		13,808	13,808	41	99.7%
Residual	6,770	4,481		11,251	0	11,251	0.0%
Total Municipal	21,561	11,284		32,845	21,827	11,651	65.2%
Commercial		34,289				34,289	0.0%
Construction		75,554			54,399	21,155	72%

Although the diversion rate for commercial waste is shown as 0% in this table, commercial waste is recovered and recycled directly by the private sector and only waste requiring disposal passes through Albury City's hands. Albury City does not have access to any data for commercial waste recovery so the figure for commercial waste recovery is not known.

⁴ Problem waste

Household growth rates in Albury City have averaged 1.4% per year over the last five years. The total quantity of municipal solid waste generated had been growing at a higher rate than household growth, an average of 3.2% since 2008-2009, primarily due to the increased diversion of kerbside organics in the new kerbside food and garden organics (FOGO) collection service adopted under the Halve Waste campaign.

Quantities of residual domestic waste have fallen by 30% since 2013-2014 levels, enabling Albury City to achieve a domestic diversion rate of 65.2% in 2019-2020.

3.3 Future Quantities

3.3.1 Kerbside Streams

Figure 2 below shows quantities of kerbside streams collected each year as well as the quantities projected to 2031-2032.

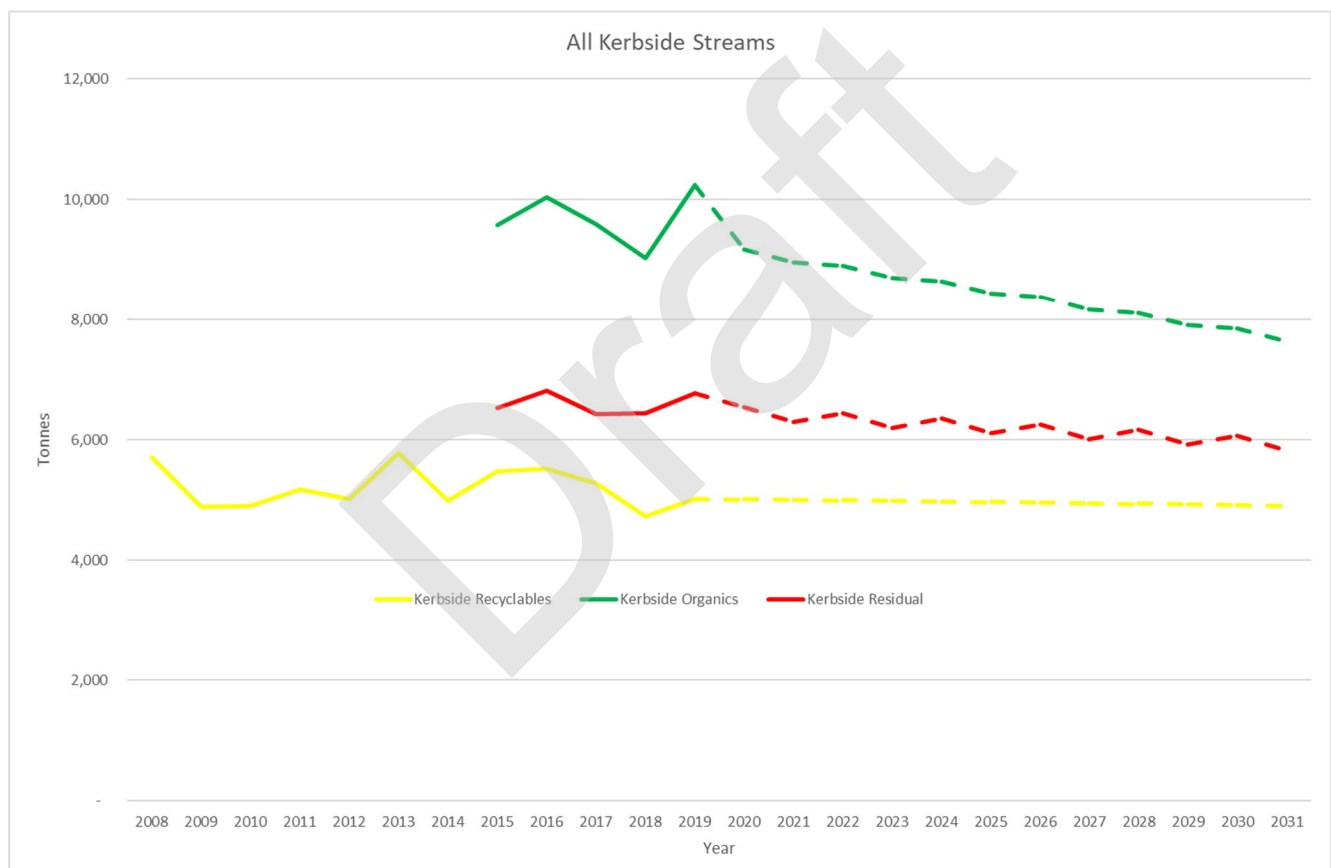


Figure 2 – Kerbside Collected Waste Stream Forecast

The chart shows that quantities of kerbside recyclables will likely be around 5,000 t into the future.

The quantities of kerbside organics are those collected each year since FOGO was introduced in 2015 and the quantities projected based on these figures. The chart shows that based on this data, there appears to be a slight downward trend in quantities of organics, which will most likely flatten out and remain just under 10,000 t per year into the future.

The quantities of kerbside residual are those collected since the introduction of a kerbside FOGO service in 2015. The chart shows that although there is a slight downward trend, quantities of residual waste will be around 6,000 t into the future.

3.3.2 C&I and C&D Streams

Figure 3 below shows the quantities of commercial and industrial (C&I) and construction and demolition (C&D) waste delivered to the AWMC and the future trend.

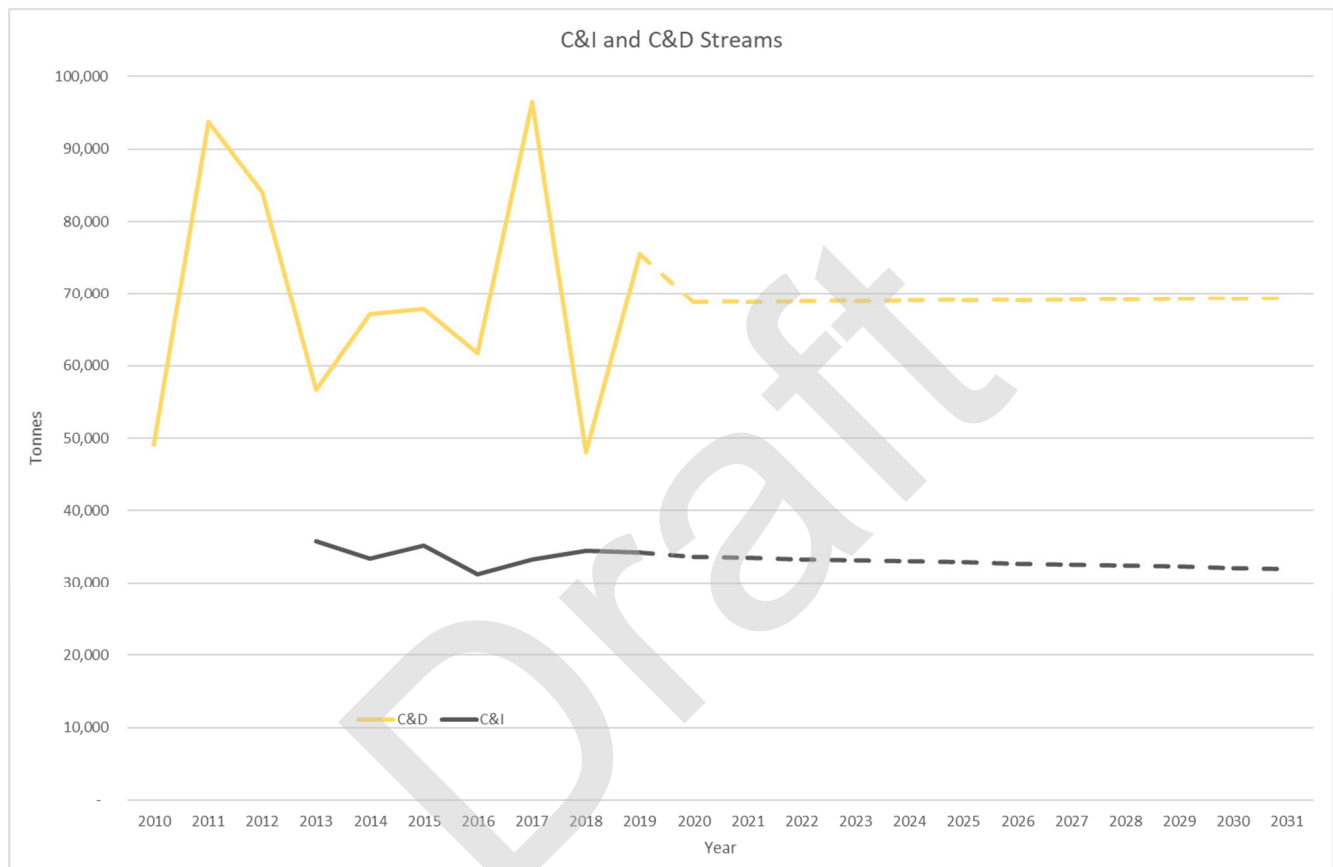


Figure 3 – C&I and C&D waste received at AWMC forecast

It seems likely that quantities of C&I waste delivered to the AWMC will be about 32,000 t into the future.

The chart shows that the quantities of C&D waste are extremely variable and that future quantities may be around 70,000 t on average but possibly varying widely each year, possibly more than 90,000 t or less than 50,000 t.

3.3.3 Drop Off Streams

More than 11,000 tonnes of waste were dropped off at the AWMC from Albury City residents in 2019-2020. This mainly consisted of residual waste and garden organics but also included smaller amounts of comingled recycling, cardboard, hard plastics, mattresses and soft furnishings, metals, including white goods, tyres, paint, e-waste, wood and timber.

Figure 4 below shows the quantities of materials dropped off at the AWMC each year and a forecast of quantities into the future.

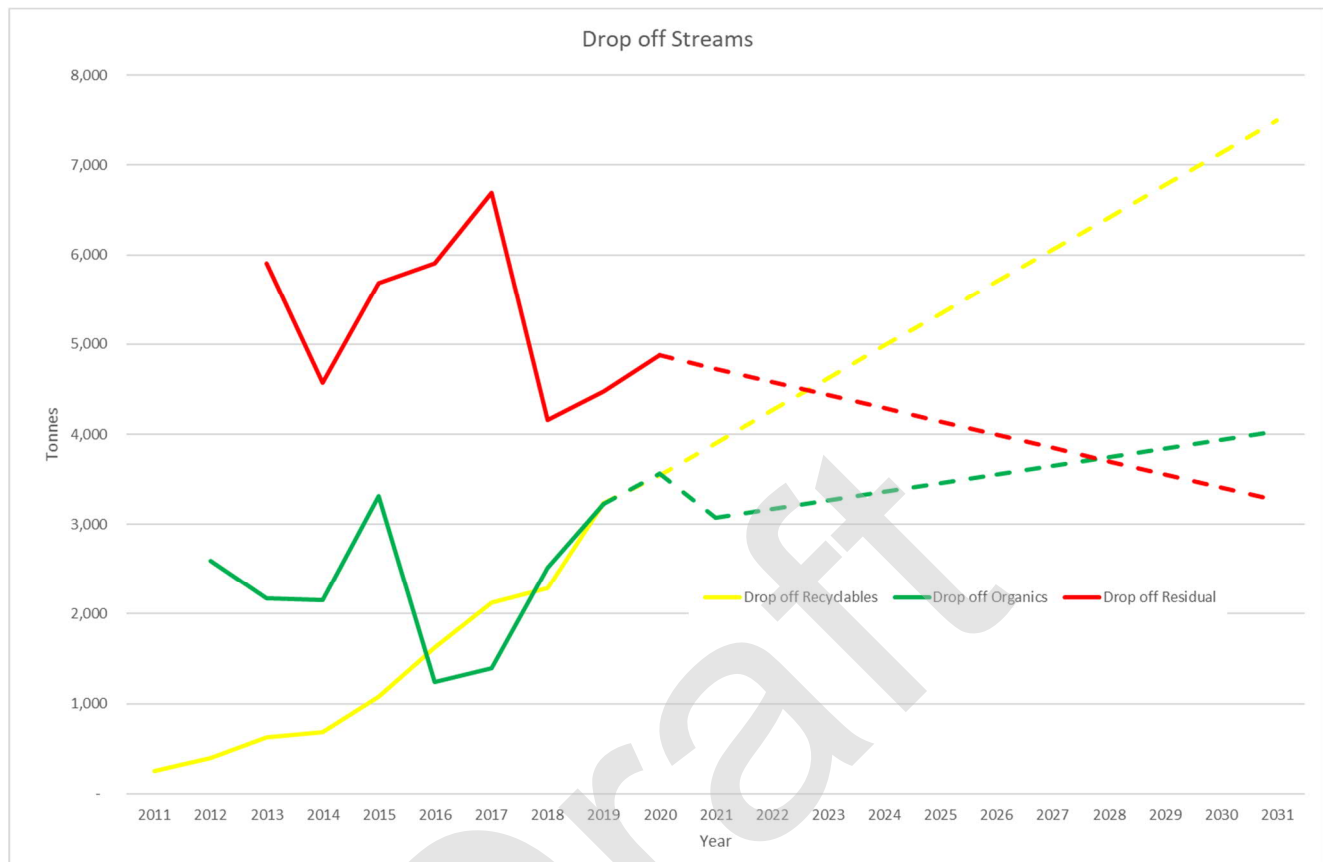


Figure 4 - Drop off streams forecast

The recyclables stream includes plastics, metals, mattresses, paper and cardboard, recyclable containers and textiles. The chart shows there is a very strong upward trend for recyclables and that quantities could be around 7,500 t by 2031.

The quantities of organics are those dropped off at the AWMC since the introduction of a kerbside organics service. The chart shows an apparent upward trend, but that data is very variable. By 2031-2032 quantities of organics dropped off at the AWMC could be around 4,000 t per year.

The amounts of residual waste are those dropped off at the AWMC since 2013 and the forecast of quantities to 2031-2032. All this material is landfilled. The chart shows a downward trend, and that quantities of drop off residual waste could be as low as around 3,200 t by 2031.

3.3.4 Litter and Illegal Dumping

Around 91 t of litter was recycled in 2018-2019 and a further 194 t sent to landfill. About 30 t of waste was dumped illegally within Albury City's boundary during 2018-2019, about a 73% decrease since 2013-2014.

3.3.5 Waste from other councils

The AWMC receives waste for landfilling from six council areas: Albury City, the City of Wodonga, Federation Council, and the Shires of Indigo, Greater Hume and Towong. The AWMC also accepts kerbside organics from Wodonga, Federation, Indigo and Albury. Greater Hume is part of Albury's kerbside collection contract but does not have a kerbside organics service.

Table 4 below shows the quantities of materials generated from these other councils in 2019-2020 and projected to 2031-2032. In the cases of organics and residual waste these are delivered to the AWMC.

Table 4 Quantities generated by other councils

Stream	Federation		Greater Hume		Towong		Wodonga		Indigo		Total	
Tonnes	2019-2020	2031-2032	2019-2020	2031-2032	2019-2020	2031-2032	2019-2020	2031-2032	2019-2020	2031-2032	2019-2020	2031-2032
Municipal Recyclables	1,013	2,152	555	1,445	N/a	969	3,608	3,994	1,715	969	6,891	9,529
Municipal Organics	2,492	3,596	N/a	603	N/a	N/a	8,100	6,889	2,520	2,614	13,111	13,701
Municipal Residual	1,870	5,000	N/a	4,693	647	2,824	4,706	6,090	2,080	3,284	9,304	21,892
Total	5,375	10,748	555	6,741	647	3,793	16,414	16,973	6,316	6,867	29,306	45,122

In most cases, quantities of each stream are projected to increase to 2031-2032 although in some cases they are projected to decline.

3.3.6 Forecast Summary

Table 5 below shows each of the streams and their current trends, along with estimates of the quantities of each in 2031-2032.

Table 5 Potential waste quantities in 2031-2032

Stream	Possible Quantities 2031-2032	Potentially Available for Recovery	Comments
Municipal organics	25,373 t	25,365 t	Includes kerbside and drop off organics
Municipal recycling	13,014 t	12,623 t	Includes kerbside, drop off and problem waste
C&D	70,000 t	69,555 t	Likely to remain similar
C&I	32,000 t	31,808 t	Based on six year trend
Residual drop off	3,263 t	3,237 t	Based on ten year trend.
Kerbside residual	5,821 t	5,652 t	Based on four year trend
Biosolids	12,770 t	12,770 t	From waste water treatment
Municipal recovered composition			
Organics drop off	4,034 t	4,034 t	Based on six year trend since the introduction of kerbside organics service. Included in Municipal organics above.
Recyclables drop off	7,496 t	7,496 t	Based on ten year trend. Included in Municipal recycling above.
Kerbside recycling	4,900 t	4,509 t	Based on ten year trend. Included in Municipal recycling above.
Kerbside organics	7,638 t	7,634 t	Based on five year trend. Included in Municipal organics above.

3.4 AWMC Review

3.4.1 Introduction

Albury City Council owns and operates the Albury Waste Management Centre in Lavington. The AWMC is the region's major waste disposal facility, servicing a wide area including Albury City, Towong, Greater Hume, Wodonga, Indigo and Federation Councils. The AWMC typically receives between 150,000 tonnes and 210,000 tonnes of waste per year.

The facility provides a range of services for resource recovery and waste disposal including:

- A recycling facility for residents and small commercial users to drop off materials for recycling including a second-hand goods shop
- A facility for disposal of general waste from which it is transferred to the landfill
- Facilities for the disposal and management of C&D waste, including an inert landfill
- Facility for the disposal and management of C&I waste
- Facilities for the disposal of garden organics collected at the kerbside and
- A large landfill for the disposal of general putrescible waste.

The following items are accepted free of charge:

- Steel
- Electronic waste
- Polystyrene
- Gas bottles
- Motor oils
- Cooking oils
- Commingled recyclables
- Second hand goods
- Cardboard
- Batteries
- Reuse items
- Fluorescent tubes
- Paint
- Hard plastic and
- Fire extinguishers.

The following items are accepted for a fee:

- Domestic waste:
 - Vegetation, plasterboard, concrete, bricks and wood
 - Mixed waste
 - Mattresses and/or bases, all sizes
 - Tyres, including motorcycle, car, truck, and tractor
 - White goods, such as refrigerators, freezers, and air conditioners and
 - Animal carcasses.
- Commercial waste:
 - General solid waste – municipal, C&I, and C&D

- Vegetation, plasterboard, concrete, bricks, and wood
- Commercial recyclable loads, such as cardboard, polystyrene, e-waste, plastics, and steel
- Low level contaminated waste, including asbestos waste and
- Unspecified waste by appointment only, such as out of region and security burial waste.

The main challenge currently facing the AWMC is maximising the level of recycling achieved at the site, thereby reducing the amount of waste requiring disposal and prolonging the life of the landfills. The facility also aims to maintain the services and amenity value to residents, while ensuring that environmental impacts are minimised and effectively managed at all times.

With a continuous and sometimes demanding flow of public and commercial customers, Albury City has divided the AWMC into three distinct sections, referred to as the 'Southern Valley', 'Northern Valley' and 'Albury Recycling Centre'.

3.4.2 Albury Recycling Centre

The Albury Recycling Centre (ARC) includes a recycling drop-off area, green waste disposal area, small vehicles weighbridge and push pit. The ARC is the drop-off facility for residents to dispose of their larger recyclables and other problem waste.

Resource recovery operations at the AWMC have grown significantly over the last twenty years. During this period the quantity of waste diverted at the AWMC has risen, although resource recovery over the last 10 years has been steady means that 2019-2020 was the first year where more waste was diverted for recovery than disposed of to landfill. This is shown in Figure 5.

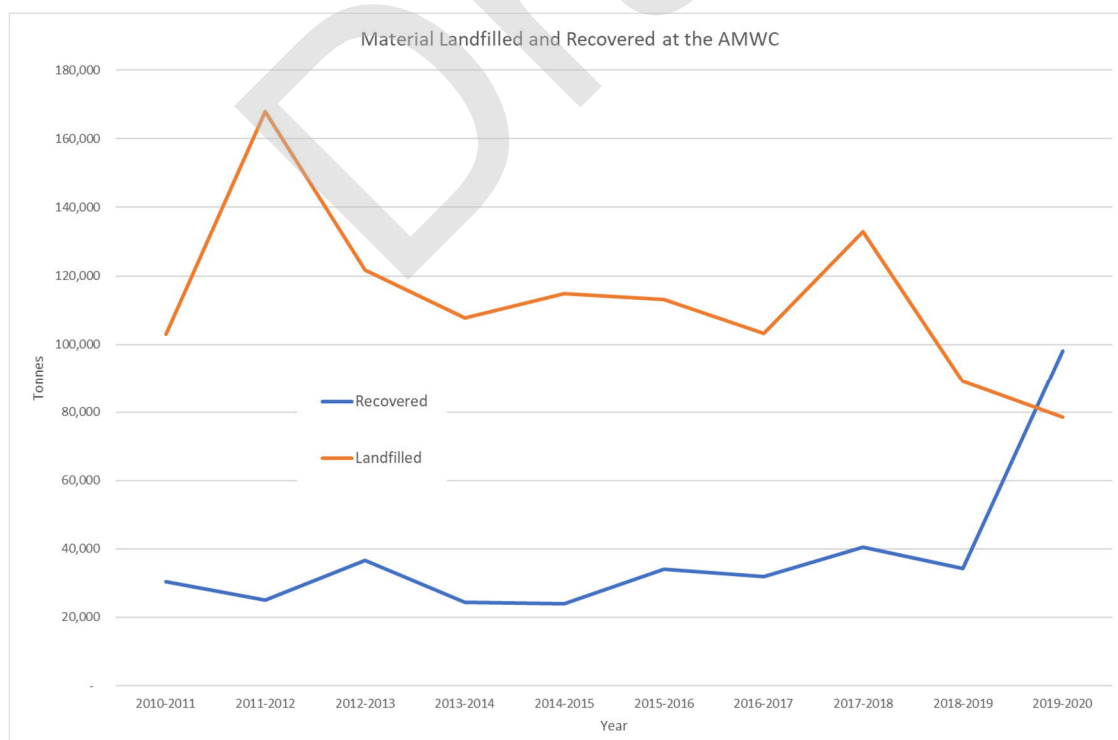


Figure 5 - Waste Diverted and Landfilled at the AWMC

4 Where Do We Want to Be

4.1 Vision

This Waste Strategy's vision is '80% diversion by 2030'

Analysis of waste data, forecasting of quantities into the future and modelling potential diversion rates shows that if the resource recovery infrastructure proposed in this Strategy is developed, along with other plans and approaches, Albury City could achieve a diversion rate from landfill of more than 95% within ten years. This means that as little as 5% of Albury's waste could be sent to landfill before the decade is out. A target of 80% diversion by 2030 would be achievable and in line with the NSW Waste and Sustainable Materials Strategy 2041 (see Section 4.4).

4.2 Purpose

The key purposes and aims of this Waste Strategy are to:

- Identify resource recovery services and infrastructure that help the community to minimise waste, increase recycling and maximise the diversion of waste from landfill in a cost-effective manner
- Maximise the efficiency, effectiveness and sustainability of all waste management practices
- Articulate a vision for the future of waste and resource recovery in Albury City and
- Set out a course of recommended goals, targets and actions to achieve that vision.

These will be achieved through a combination of assessing the need for, and then developing or procuring, new services and infrastructure, improving environmental practice in Albury City operations and throughout the Albury community, extending the life of the current regional landfill through further waste reduction and diversion initiatives, and considering alternative mechanisms for the processing of residual and organic waste.

In addition to supporting Albury City's sustainability and financial goals related to solid waste management, this Strategy also reflects and supports the prevailing national, state and regional legislative targets.

This Waste Strategy is intended to cover the next five years but will be kept under review by Albury City and updated or amended as required in response to new legislation or targets or other such developments in the solid waste management sector, which could impact Albury City's obligations.

4.3 Albury City's Future Objectives

Based on the assessment of Albury City's performance data and identification of strategic gaps described above, the following objectives are identified, which will be implemented by Albury City through the application of the strategic themed actions detailed in Section 6 of this Strategy:

- Provide continued and further public engagement and education to ensure that the generation of municipal waste as captured from the kerbside remains below the regional strategy target of 9.5 kg per capita, aiming to improve the recorded five-year trend.

- Ensure that opportunities to reinvigorate MSW recycling growth are fully considered to deliver the performance uplift needed to achieve and sustain the state target of 80% and the regional target of 50%.
- In order to be able to apply the 80% state target, Albury City will need to undertake more compositional audits of landfilled streams to identify what recoverable materials are being landfilled and what materials that could be recovered if a recovery system existed. In the meantime, Albury City will target the increased recycling and diversion of these streams received at the AWMC and implement a short-term target of achieving and maintaining 80% diversion for C&D received at the AWMC.
- Progress with an assessment of residual waste treatment and landfill diversion opportunities available, which is likely to involve working collaboratively with regional Albury City partners and/or negotiating access to appropriate capacity at third party treatment facilities which may be developed in the next five years. If the waste management routes proposed in this Strategy are developed, then a landfill diversion target of 95% within ten years would be achievable. See Section 4.1.
- Continue to develop, improve and adapt the AWMC for future problem waste requirements, providing a strategic central hub for the RAMJO regional councils.

4.4 Waste and Sustainable Materials Strategy 2041

The Department of Planning, Industry and Environment (DPIE) and the NSW EPA have developed the Waste and Sustainable Materials Strategy 2041 (NSW Waste Strategy 2041). The NSW Waste Strategy 2041 presents the opportunity to transition NSW to a circular economy and provide long-term economic, social, and environmental benefits for NSW.

Stage one of the NSW Waste Strategy 2041 was recently released, taking NSW to 2027. Subsequent stages of the Strategy will be released to take NSW forward to 2041. A guide to future waste infrastructure needs in NSW was also released as a supporting document to the NSW Waste Strategy 2041.

The NSW Waste Strategy 2041 sets the following targets:

- reduce total waste generated by 10% per person by 2030
- have an 80% average recovery rate from all waste streams by 2030
- significantly increase the use of recycled content by governments and industry
- phase out problematic and unnecessary plastics by 2025
- halve the amount of organic waste sent to landfill by 2030.

Albury City's existing FOGO service and the initiatives set out in this Strategy align with the NSW Waste Strategy 2041. The Albury Waste Management Strategy would be reviewed and updated periodically, generally in-line with the release of subsequent stages of the NSW Waste Strategy 2041 as noted in Section 7.1.1.

4.5 RAMROC Regional Waste Strategy 2017- 2021

4.5.1 Strategy Overview

RAMJO (previously RAMROC) represents the interests of eleven member councils, including Albury City. It was formed in July 2007 as RAMROC and brings together the former Murray Regional Organisation of Councils and Riverina Regional Organisation of Councils.

The RAMROC Regional Waste Strategy 2017-2021 (RAMROC Strategy) is consistent with the NSW WARR Strategy 2013-2021 but has not been updated to comply with the Waste Strategy 2041.

The recommendations and actions identified in this Waste Strategy for Albury take account of, and are designed to contribute to, the achievement of each of RAMROC Strategy's key state and regional objectives and targets.

The RAMROC Strategy's interim targets and Albury City's performance against them are shown in Table 6 below.

Table 6 RAMROC Interim Targets

#	Key Result Area	Target	Implementation Timeline	Albury Council's Performance
1	Avoid and reduce waste generation	Maintain regional waste generation at 9.5kg per capita per week	2020-2021	Albury's per capital per week waste generation rate is around 6.5 kg, below the regional target. It has been consistently below the regional target for more than ten years.
2	Increase recycling	Implement kerbside recycling for all member councils	2020-2021	Albury City already has a kerbside recycling service so is meeting this target
3	Divert more waste from landfill	Achieve a regional resource recovery rate of 50%	2020-2021	Albury City's MSW diversion is over 65% exceeding the RAMROC interim target of 50%.
4	Manage problem wastes better	Deliver at least one community recycling centre within each member council's district	2020-2021	Albury City already operates a CRC at the AWMC
5	Reduce litter	Establish a baseline and reduce the incidence of litter by 10%	2020-2021	Albury City uses the RID system for monitoring litter and dumped rubbish. This should continue to be used to report litter incidents. Programs should be implemented with the aim of meeting the regional target of reducing incidents of litter by 10%.
6	Reduce illegal dumping	Establish a baseline and reduce the incidence of illegal dumping in the region by 10%	2020-2021	

4.6 Recovery projections by stream

Figure 6 below shows recovery projections for each of the scenarios shown in Table 6 for all streams generated and handled by Albury City Council. These include:

- C&I and C&D waste
- Drop off organics, recyclables and residual
- Kerbside organics, recyclables and residual and
- Biosolids.

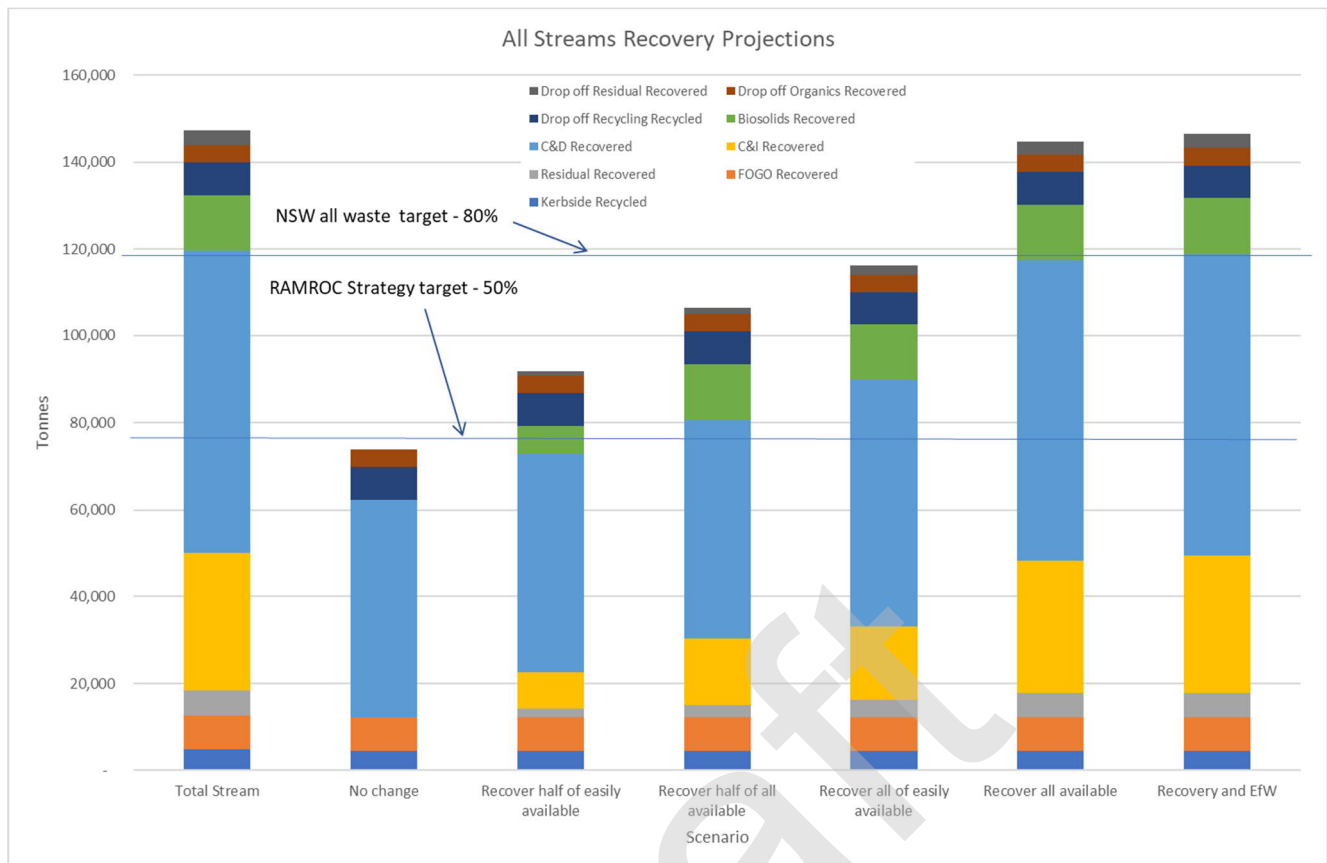


Figure 6 - All streams recovery projections

The chart includes those streams that already have high diversion rates, such as C&D, and which are expected to continue this performance into the future, as well as those streams for which additional diversion could be achieved and those from which there is no recovery currently and for which increased diversion will be required to reach the proposed targets.

To reach the RAMROC (RAMJO) Strategy target of 50% diversion, Albury City will have to maintain the same high recovery of those materials already being recovered and recover at least half of easily available material.

To reach the NSW all waste target of 80% diversion by 2030 Albury City will have to maintain the same high recovery of those materials already being recovered and recover 81% of all materials.

5 How We Are Going to Get There

5.1 Halve Waste

Halve Waste is an initiative of Albury City Council, City of Wodonga, Federation Council, and the Shires of Towong, Greater Hume, and Indigo. The overarching goal of the Halve Waste program is to reduce the amount of waste going to landfill by 80%.

The Halve Waste initiative includes a number of programs, which for 2022-2023 are summarised in Table 7 below.

Table 7 Halve Waste 2022-2023 Project Plan

Theme	Program
1. Advertising	Recycling Bin Campaign 'Back to Basics'
	Waste to Wonder Campaign
	Closing the Loop on Organics Campaign
2. Social Media and Online	Facebook/Website Management
	Online resources Education Content
3. SMART Centre AWMC Tours	Outdoor Education Space
	AWMC Tours
4. Community Engagement	Community Engagement Officer
	HW Stalls and Community Education Sessions
	Community Centre Program
	Moving House
	Bin Audits/Bin Reward Tags
	Repair Café Sponsorship
	Community Partnership/HW Sponsorship
	Nappy Program
	Reusable products rebate
	Sustainable Living Festival
	Keep Australia Beautiful Sponsorship
	Garage Sale Trail
5. Education (Schools)	Education Sessions
	Clean Up Australia Day
	HW Sponsorship Program
6. Transfer stations	Polystyrene Subsidy
	Charity Bins
	Support Materials diversion at Transfer stations
7. Project Management	Salaries, On-costs, casual bus drivers, IT, fleet costs
	Grant Writing
	Award Opportunities and nominations
	Support local recycling businesses
ACC projects	Supporting Kerbside behaviour change
Grant funded projects	Plasterboard disposal

Halve Waste is already part of the collaborative group of councils but should be expanded to neighbouring councils if they are included in the kerbside collection contract. This will require increasing resources to accommodate servicing these councils and the schools and community areas in them.

The levy Albury City includes at the AWMC should be pegged to CPI at a minimum and regularly reviewed to ensure it covers all of Halve Waste's costs. It should be increased appropriately if it does not.

5.2 Potential Waste Treatment Options

There are three main waste streams Albury City needs to consider how to process. These are:

- Residual Waste – anything that is not organics, recyclable or a material that can be recovered and comes from kerbside, C&I and C&D sources.
- Organics – food and garden organics from kerbside, municipal and C&I sources and biosolids

- Recoverables – materials, other than organics, separated at the AWMC and from residual and organics processing that includes recyclable paper, cardboard, metals, mattresses and C&D material, plastics, textiles and rubber and timber.

The options for treating these streams are discussed below.

5.2.1 Residual Waste Treatment

5.2.1.1 Quantities

There could be as many as 68,635 t of residual feedstock available for processing in 2031-2032. The sources of these are shown in Table 8 below.

Table 8 Residual sources and quantities

Source	Tonnes
Albury kerbside residual	5,821
Albury drop off residual	3,263
Wodonga municipal residual	5,710
Municipal residual from other councils	15,416
C&I drop off residual	30,000
Organics from C&D MRF	8,425
Total	68,635

5.2.1.2 Treatment Options

Potential technologies for treating these quantities include:

- Mechanical biological treatment (MBT), including aerobic treatment, anaerobic treatment and bio-drying.
- Energy from Waste
- Advanced thermal treatment (ATT), comprising pyrolysis, gasification and plasma technology.

Mechanical Biological Treatment

MBT involves both mechanical and biological processes. Three MBT configurations are potential options for Albury City:

- Mechanical pre-treatment and aerobic treatment
- Mechanical pre-treatment and anaerobic treatment with energy recovery from biogas
- Mechanical pre-treatment with bio-drying.

Energy from Waste

Waste contains materials that have a significant amount of embodied energy. This can be transformed into electrical power, steam, hot water or a combination.

Conventional EfW, commonly referred to as incineration, is a technology that uses combustion to achieve total thermal degradation of a substance with sufficient oxygen to oxidise the fuel completely. Conventional EfW is appropriate for waste that is non-biodegradable or that cannot otherwise be re-used or recycled.

Advanced thermal treatment technologies

ATT primarily comprise technologies using pyrolysis and/or gasification to process waste. In recent years pyrolysis and gasification have been commercially applied to the treatment of municipal solid waste, although on a very limited scale in comparison to conventional EfW.

5.2.2 Organics

5.2.2.1 Quantities

There could be as many as 41,146 t of high quality source-separated organics available for processing in 2031-2032. The sources are shown in Table 9 below.

Table 9 High quality organics sources and quantities

Source	Tonnes
Albury kerbside FOGO	7,638
Wodonga kerbside FOGO	6,889
AWMC drop off organics	4,034
C&I food	2,000
Biosolids	13,772
Municipal organics from other neighbouring councils	6,813
Total	41,146

Any new facility should have the capacity to process up to this quantity of organics.

5.2.2.2 Treatment Options

There are three main technology types used for the processing of organic waste:

- open windrow composting
- in-vessel composting and
- anaerobic digestion.

The most appropriate system for Albury City will be in-vessel composting. This aligns with the kerbside collection system and is a simple and proven technology. Open windrow composting is suitable for garden organics but not food organics due to the risk of odour as well as leachate and vermin if not properly managed. The NSW EPA does not favour open windrow composting as a processing system for food or FOGO. Anaerobic digestion is most suitable for food-only streams that are free of contamination. It is not likely to be suitable for a FOGO system. It is also a more complex and expensive technology.

Albury City, along with several neighbouring councils, currently has a contract with Cleanaway for the collection and processing of organic food and garden waste. This contract is due to expire in June 2024, and Albury City should begin the process of assessing its options for ensuring continued access to organics waste processing infrastructure after June 2024. Any requirement to establish a new processing facility in the region will require several years to identify a site, secure required approvals and develop the infrastructure in accordance with legislation and any approval conditions.

5.2.3 Potential uses for products including recoverable

Residual and organics processing both produce materials that need to be landfilled or can be reused or recycled. Table 10 below shows potential uses for products that may be produced from residual and organic processing.

Table 10 Processing Products

Material	Quantities in 2031-2032 (t)	Source	Product from	Destination
Compost	21,969	Garden organics and food from Albury and Wodonga's kerbside FOGO services, garden organics dropped off at the AWMC and food collected as part of a separate commercial food waste collection	IVC	Agriculture and horticulture sectors
Mixed Waste Organic Output (MWO) ⁵	10,139	Residual waste from other councils, Albury's kerbside residual and C&I and C&D streams	MBT	Initially MWO could be used as a landfill cover material, subject to EPA approval. In the future, if waste to energy facilities are developed MWO could be combined with other materials to produce an RDF which could be used in suitable waste to energy facilities.
Residual	10,630	Material that cannot be recovered and for which no other purpose has been found. Rejected contamination and un-recoverable material	IVC, recyclables MRF, MBT and C&D MRF	Landfilled
Glass. Likely to contain glass that would not be accepted at the MRF, such as construction and automotive glazing	1,824	In residual delivered by other councils, Albury's kerbside residual and from C&I and C&D streams.	MBT	The market for glass fines is significantly depressed. Opportunities may exist for it to be crushed and used as a sand substitute in operational or construction applications such as a component of road surfacing and as a drainage medium
Clean paper and cardboard	31	Clean, uncontaminated paper and cardboard dropped off at the AWMC	AWMC	Collected for recycling
Other paper and cardboard. Likely to be soiled and contaminated		MBT output from residual waste delivered by other councils, Albury's kerbside residual and from the C&I and C&D streams.	MBT	Recovery is difficult. Most likely to be combined with other materials to make an RDF

⁵ MWO is of lower quality than the compost derived from garden organics or FOGO systems, which limits its potential uses. It has been used for mine site rehabilitation but also applied to land as a soil enhancer. Currently, use of MWO is restricted by the NSW EPA and it cannot be used as a soil amendment on agricultural, mining rehabilitation or forestry land. As a result, markets for MWO are difficult to secure.

Material	Quantities in 2031-2032 (t)	Source	Product from	Destination
Metals and whitegoods. Likely larger bulky items like furniture, refrigerators, automotive parts, sheeting, building materials and domestic appliances	9,017	Residual waste delivered to the MBT by other councils, Albury's kerbside residual and from the C&I and C&D streams.	MBT	Stockpiled and collected by a metals recycler
C&D products including sand, gravel and aggregates, bricks, concrete, sand, masonry and asphalt among others	33,473	Output from the MBT and also material dropped off at the AWMC small vehicles area.	C&D MRF	Sold, or used by Albury City, for operational purposes such as road construction and landscaping
Plastics. Likely to be dirty and contaminated.	18,433	MBT, small vehicles drop off area and C&I and C&D streams.	MBT, C&D MRF	No market for dirty contaminated plastic. Only possible use, other than landfilling, would be to shred and combine with other materials to make RDF.
Textiles and rubber. Likely to be dirty and contaminated.	8,429	MBT, small vehicles drop off area and C&I and C&D streams.	MBT, C&D MRF	No market for dirty contaminated materials of this kind. Only possible use, other than landfilling, would be to shred and combine with other materials to make RDF.
Timber and pallets. would include unprocessed timber, trees and branches too large for IVC and dressed and commercial timber off-cuts and waste	29,289	MBT, small vehicles drop off area and from the C&I and C&D streams	MBT, C&D MRF	This material would be chipped and sold for, or used by Albury City for, operational purposes such as landscaping, agriculture and horticulture
Hazardous materials, including batteries	371	MBT, small vehicles drop off area and from the C&I and C&D streams	MBT, C&D MRF	safely stored and collected by a specialist recycler or disposal contractor
E-waste	351	MBT, small vehicles drop off area and from the C&I and C&D streams	MBT, C&D MRF	safely stored and collected by a specialist recycling contractor
Mattresses and soft furnishings	844	AWMC small vehicles drop off area	Mattress processing facility	metals, foam and timber for recycling and floc which could form a component of an RDF
Tyres	65	AWMC small vehicles drop off area	No processing	stockpiled until there are enough to be collected by a tyre recycler

5.3 Priority Infrastructure

5.3.1 Potential Diversion

Figure 7 below shows the diversion potentially achievable with the development of each type of infrastructure.

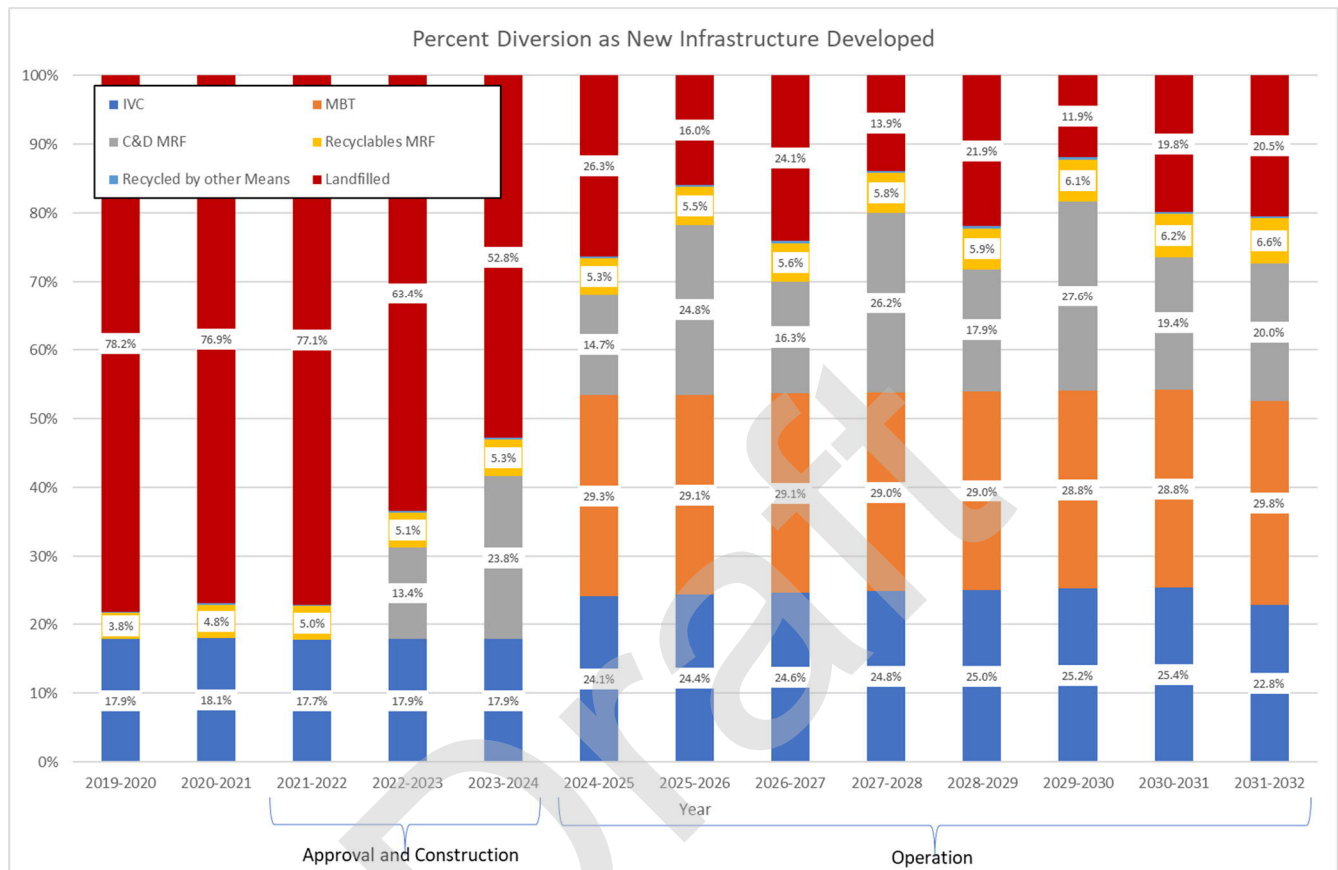


Figure 7 - Percent diversion as new infrastructure developed

5.3.2 Mechanical Biological Treatment

By 2031-2032 a mechanical biological treatment (MBT) facility would accept about 50,000 t of residual material from Albury, Wodonga, other councils' kerbside streams and the AWMC drop off area. It would also accept 30,000 t of C&I waste and contribute about 30% to overall diversion. Currently about 55,000 t of materials is available that could be processed in an MBT facility. A facility with capacity for 80,000 t could be developed now without the need for modular additions.

5.3.3 In-vessel Composting

An in-vessel composting (IVC) facility would accept about 50,000 t of organics material, including 13,770 t of biosolids and 2,000 t of commercial food, by 2031-2032, and contribute 25% to diversion by then. Currently about 47,800 t of organics is available that could be processed in an IVC facility. A facility with this capacity could be developed now without the need for modular additions.

5.3.4 C&D MRF

A C&D MRF is current under development with construction commenced in 2022. This is expected to be able to process 80,500 t by 2031-2032 and contribute 37% to diversion by then. Currently about 68,800 t of C&D waste is available that could be processed at the MRF.

5.3.5 Refused-derived Fuel

About 60,000 t of material that could be processed as a refuse-derived fuel (RDF) would be available by 2031-2032. Currently about 54,000 t of these materials could be available so a facility of about 60,000 t capacity could be constructed anytime a market for RDF becomes available.

5.3.6 Mattresses and soft furnishing recycling facility

About 469 t of mattresses and 375 t of soft furnishings could be available for processing by 2031-2032. A study commission by Albury City found that it was economically viable to establish a mattress processing facility.⁶

5.3.7 Glass crushing facility

About 2,500 t of glass could be produced per year by 2031-2032. Currently there is no market for this glass and this quantity is best crushed for use locally as a sand substitute in Albury City operations and for sale.

5.3.8 Timber chipping and shredding

About 29,000 t of timber and pallets could be produced each year by 2031-2032. This material can be chipped for use in particleboard manufacture, animal bedding, mulch and compost, biofilters and as a fuel for bioenergy facilities.

5.3.9 Other Materials

Other materials such as clean cardboard and paper, metals and whitegoods, C&D products, hazardous waste, e-waste and tyres would be collected as part of existing contracts or services provided for these materials.

5.3.10 Expansion

Development of other onsite infrastructure will require considerable planning and consideration of land availability. Expansion of current operations will benefit from being located at the AWMC due to the existing onsite road infrastructure and weighbridge set up. As a result, expansion could be limited due to surrounding land use. Council will then need to consider how best to reduce the risk of impact on neighbouring properties. In conjunction with onsite expansion opportunities, Council should investigate other local precincts for resource recovery activities. An offsite resource recovery centre may be an alternative to expanding development of the AWMC if onsite land availability is limited. This approach will go some way to future-proofing the site due to the population growth expected within the City.

⁶ Regional Mattress Processing Feasibility Study. 10 March 2020. MRA Consulting

6 Financial

6.1 Forward Estimates

6.1.1 Assumptions

The costs to develop the three main infrastructure facilities, an MBT, an IVC and an RDF processing facility have been calculated over 25 year along with any income and savings in landfill space. The assumptions made in each case are shown in Table 11 below.

Table 11 Assumptions for Infrastructure Forward Cost Estimates

Item	IVC	MBT	RDF
Capital cost	\$19,528,000 \$400 per tonne	\$18,810,051 \$300 per tonne	\$3,300,000 \$60 per tonne
Construction time	One year	Two years	One year
Operating cost	\$80 per tonne	\$88 per tonne	\$155 per tonne
Residual disposal rate	\$157 per tonne ⁷ , increasing at CPI rate per year		
Income	Compost bought by wholesaler at \$25 per tonne	Sale of metals at \$100 per tonne	Sale of RDF at \$50 per tonne
	Albury City and commercial gate fee \$85 per tonne		N/a
Landfill saving rate	\$157 per tonne ⁸ , increasing with CPI per year		
Nominal discount rate	3.1% ⁹		
CPI	2.3% ¹⁰		

The costings do not take into account the cost of borrowing that Albury City may need to make.

A summary of the costs for each in each case are shown in Table 12 below.

Table 12 Infrastructure cost summary

		IVC	MBT	RDF	Total
Total capital costs over 25 years	\$M	\$19.5	\$18.8	\$3.3	\$41.6
Total operational costs over 25 years	\$M	\$143.9	\$190.6	\$264.3	\$598.8
Total cost over 25 years	\$M	\$163.4	\$209.4	\$267.6	\$640.4
Total income over 25 years	\$M	\$134.2	\$142.1	\$85.3	\$361.6
Total value of landfill savings over 25 years	\$M	\$249.9	\$274.1	\$267.7	\$791.7
Total benefit NPV	\$M	\$136.8	\$128.2	\$54.9	\$319.9

The table shows that all infrastructure facilities will provide positive returns over their 25 year lives and that there would be a total net benefit of \$319.9 million for Albury City.

In the current monetary environment, with rising interest rates due to inflationary pressures, the actual infrastructure costs may be higher than those outlined in Table 12, however, for the purposes of this waste strategy the costs presented are considered reasonable estimates.

⁷ Advised by Albury City

⁸ Advised by Albury City

⁹ IPART Local Government discount rate fact sheet - 26 February 2021

¹⁰ IPART Local Government discount rate fact sheet - 26 February 2021

7 Recommendations and Implementation Action Plan

7.1 Introduction

This section summarises the recommendations and actions Albury City will consider to implement this Waste Strategy. These individual actions have been categorised into a series of strategic themes as follows:

- Strategic Theme 1: New infrastructure identification and development
- Strategic Theme 2: Existing Infrastructure optimisation
- Strategic Theme 3: Provision, configuration and delivery of services and
- Strategic Theme 4: Waste reduction, education and community engagement.

For each action identified, a priority ranking has been assigned to reflect the respective urgency and timeframe in which Albury City should implement the action. This is shown in Table 13 below.

Table 13 Priority Rankings for Strategic Theme Actions

Timeline Requirements	Indicative Timeframe
Immediate	Within 6 months
Short	Within 18 months
Medium	Within 3 years
Long	Within 5 years

7.1.1 Review of the Strategy

Although the NSW Waste and Sustainable Materials Strategy 2041 is proposed to have a 20 year life span, only Stage 1: 2021–2027 has been released. Five years from now, in 2027 when this stage expires and Stage 2 is released, would be an appropriate time to review the Albury Waste Management Strategy and confirm or adjust the targets and actions proposed in the current version.

The timing for the actions listed in Table 18, Implementation Timetable, are therefore, limited to five years. All the actions listed can be achieved in five years. The Strategy should be reviewed in five years to update the progress of the actions against the proposed timing. The review should also take into account changes to Albury's waste system and performance, the legislative environment, progress in the development of waste processing technology and infrastructure, changes in the attitude of the community to waste management and its handling and processing.

The following sections set out specific actions associated with each of the four strategic themes.

7.2 Strategic Theme 1: New Infrastructure Identification and Development

As the economic hub for the region, Albury has to date rightly played a leading role in the development of regional waste management infrastructure, the AWMC should logically continue to be an essential contributor to future infrastructure provisions for the region.

Associated actions are summarised in Table 14 below, with the key focus being on consideration of future arrangements for effective management of food and garden organics, which is currently processed outside of the region and residual waste which is currently disposed to landfill.

Table 14 Strategic Theme 1 – New Infrastructure Identification and Development

Action Ref	Action	Sector	Priority	Outcome
1.1	Proactively engage with regional partner councils to assess collective appetite and/or need for joint working arrangements when delivering future waste management infrastructure.	Infrastructure improvements for municipal waste	Immediate	Clear framework of understanding with regard to the type and scale of infrastructure need.
1.2	<p>Assessment of organic waste management options, using cost benefit analysis principles.</p> <p>The assessment should include consideration of:</p> <ul style="list-style-type: none"> Regional v local solutions Available processing technologies Commissioning method and Contract type. <p>An assessment should also be carried out on the feasibility of establishing a composting facility located either in Albury City Council area or in the region, which will provide the benefit of ensuring alignment with Albury City's FOGO collection system and the configuration of any future kerbside collection contracts which Albury City may let.</p>	Infrastructure improvements for municipal waste	Immediate	Identification of the most appropriate long-term solution for organic waste generation in the context of scope, technology preferences, associated service requirements and potential contractual arrangements.
1.3	<p>Commencement of procurement of Albury City's preferred organic waste management solution, proposed to be an in-vessel composting system.</p> <p>After Albury City understands waste quantities, including partners, and presentation of feedstock following completion of Action 1.1, the option remains to be relatively agnostic in relation to parameters such as technology selection and location, which can be considered in the performance and cost evaluation.</p>	Service delivery	Short	Albury City, and any partner Albury City's, position formally agreed and potential providers engaged to participate in the procurement process.
1.4	Implementation of Albury City's preferred organic waste management solution following completion of Action 1.2, with new service and infrastructure availability to align with expiry of current contractual arrangements in 2024.	Service delivery	Long	Suitable and proven arrangements in place to ensure effective long-term treatment of organic waste.
1.5	<p>Assessment of long-term residual waste management options, using cost benefit analysis principles and requiring further engagement with regional partners. The assessment should include consideration of:</p> <ul style="list-style-type: none"> Regional v local solutions Available processing technologies Commissioning method and Contract type. 	Service delivery	Short	Detailed understanding of viable long-term solutions for residual waste generation in the context of scope, technology preferences, associated service requirements and potential contractual arrangements.
1.6	<p>Procurement of Albury City's preferred long-term residual waste management solution, proposed to be a mechanical-biological treatment facility.</p> <p>After Albury City understands the likely configuration of key partners and the collective waste quantities, the option remains to be relatively agnostic in relation to parameters, such as technology selection and location, as these can be considered in the performance and cost evaluation.</p>	Service delivery	Medium	Albury City, and any partner councils, position formally agreed and potential providers engaged to participate in the procurement process.

Action Ref	Action	Sector	Priority	Outcome
1.7	Implementation of Albury City's preferred residual waste management solution following completion of Action 1.6, with new service and infrastructure availability to align with the requirements stipulated by any future change to national and/or state legislation.	Service delivery	Long	Robust arrangements in place to ensure effective long-term treatment of residual waste.
1.8	Develop a waste disposal contingency plan.	Service delivery	Short	Protocols in place for use in the event that the AWMC landfill facility should become unavailable.
1.9	Commission operation of C&D MRF currently under construction	Infrastructure improvements for municipal waste	Immediate	MRF operates efficiently and to expectations
1.10	Review need for RDF facility in light of development of EfW facilities in Victoria	Infrastructure improvements for municipal waste	Long	Decision made on whether to develop RDF facility or not depending on markets

Draft

7.3 Strategic Theme 2: Existing Infrastructure Optimisation

In the context of existing waste management infrastructure, the AWMC site is the key asset which Albury City provides for the benefit of the residents of Albury City and neighbouring regional councils.

During the course of the development of this Waste Strategy, a range of improvement measures has been identified which would further enhance and optimise the management and delivery of services at the AWMC, as summarised in Table 15 below.

Table 15 Strategic Theme 2 – Existing Infrastructure Optimisation

Action Ref	Action	Sector	Priority	Outcome
2.1	Develop a comprehensive engineered landfill cell fill plan for the Northern Valley inert landfill and Southern Valley putrescible landfill area at the AWMC.	Infrastructure improvements for municipal waste	Short	Optimised operational life of the landfill facility.
2.2	Assess potential costs and benefits of increasing cell capacity through use of alternative lining and capping barrier systems in future landfill cell design packages.	Infrastructure improvements for municipal waste	Short	Optimised operational life of the landfill facility.
2.3	Carry out a formal assessment of mobile plant used at the AWMC.	Service delivery	Medium	Confirmation of whether each item is fit for purpose.
2.4	Review design of the push pit and use of mobile plant in the area.	Infrastructure improvements for municipal waste	Immediate	Identification of potential improvements in terms of operational performance and wider health and safety issues
2.5	Assess scope to provide a sorting facility for general waste deposited at the push pit.	Infrastructure improvements for municipal waste	Immediate	Minimise landfill disposal, maximise diversion.
2.6	Produce a site master plan for the AWMC to include consideration of: <ul style="list-style-type: none"> a) Holistic review of site configuration b) Use of Zone B – assess opportunities to make better use of the space available, for example, processing of inert waste on site c) Further solar farm potential, and/or other renewable energy options d) Auditing ownership status of surrounding properties 	Infrastructure improvements for municipal waste Service delivery	Medium	Identification of development opportunities and potential gaps in services. Maximise income to Albury City from redundant assets and closed landfill areas. Opportunities identified for Albury City to acquire land and expand the AWMC or provide a buffer zone, subject to use and proximity to neighbours.
2.7	Compositional analysis of the incoming waste stream prior to procuring any plant and processing equipment.	Service delivery	Medium	Appropriate systems identified to maximise diversion and minimise operational and maintenance issues.
2.8	Review all traffic flows on site to identify particular bottlenecks.	Service delivery	Short	Identification of options to mitigate problem areas including potential alternative routing.
2.9	Assess the need for a future landfill resource as part of infrastructure planning considerations as airspace is consumed.	Infrastructure improvements for municipal waste	Long	Initial due diligence to identify potential alternative landfill locations and initial cost reporting prior to the next iteration of the Strategy.

Action Ref	Action	Sector	Priority	Outcome
2.10	Continue good practice capping of the landfill cells with a low permeability cap.	Infrastructure improvements for municipal waste	Long	Restricted rates of leachate generation and associated treatment costs.
2.11	Develop a formal landfill closure plan based on preferred post-closure land use and adopted final landform.	Infrastructure improvements for municipal waste	Long	Clearly defined plan for restoration and after use of the site.
2.12	Review, develop and document the LFG monitoring program as appropriate.	Infrastructure improvements for municipal waste	Immediate	Address requirements of EPA licence and recommendations of the LEMP.
2.13	Procure third-party services to monitor landfill gas at the site if service not retained in-house. If service is retained in-house, identify and train members of existing staff or recruit new members of staff to be trained to provide this function.	Infrastructure improvements for municipal waste	Immediate	Appropriate resources in place to ensure effective ongoing monitoring of landfill gas.
2.14	Procure third-party services to manage and monitor the leachate treatment plant if service not retained in-house. If service is retained in-house, identify and train members of existing staff or recruit new members of staff to be trained to provide this function.	Infrastructure improvements for municipal waste	Immediate	Appropriate resources in place to ensure effective ongoing operation of the leachate treatment plant.
2.15	Ensure any infrastructure development takes sustainability in design into account	Infrastructure improvements for municipal waste	Medium	Reduction in consumption of non-renewable resources, minimise waste, and create healthy, productive environments

7.4 Strategic Theme 3: Provision, Configuration and Delivery of Services

Albury City achieved significantly above both the state and regional diversion targets. Proposed actions for future delivery of Albury City services to maximise recycling and encourage waste diversion from landfill, including kerbside collection and services delivered at the AWMC and are summarised in Table 16 below.

Table 16 Strategic Theme 3 – Provision, Configuration and Delivery of Services

Action Ref	Action	Sector	Priority	Outcome
3.1	Explore opportunities for expanding the range materials collected at the kerbside, where viable outlets exist.	Service delivery	Short	Optimised recycling rates.
3.2	Assess the effectiveness of current collection services and ensure that any modifications are identified in advance of contract re-procurement.	Service delivery	Short	Alignment of Albury City service requirements and goals with future contract procurement.
3.3	Assess and periodically review the number of operational staff at the AWMC to ensure that sufficient staff are available at all times.	Service delivery	Immediate	Optimised blend of staff welfare, service provision and value for money.
3.4	Develop a staff engagement plan including consideration of staff incentivisation measures.	Service delivery	Short	Informed and engaged site staff to successfully implement behaviour change in site users.
3.5	Review the mobile plant and other technological advances pertaining to the putrescible landfill, including LFG and LTP, and procedures and staff training.	Service delivery	Short	Waste is deposited efficiently with optimised compaction being achieved and airspace being conserved.
3.6	Review staff operating hours for the AWMC.	Service delivery	Immediate	Improved coverage across all areas of the facility and address known service bottleneck periods.
3.7	Review all material off-take arrangements at least annually.	Service delivery	Short	Measures reflect best practice and achieve best value for Albury City.
3.8	Benchmark all current charging, including domestic and C&I charges.	Service delivery	Immediate	Rates set at appropriate levels to maximise revenue but also drive improved recycling performance.
3.9	Update current Gate Fee Study, including a detailed assessment of available landfill airspace, current and pipeline competitor facilities, and any relevant developments in the legislative environment subsequent to this Strategy.	Service delivery	Medium	Robust platform provided to inform potential increases at the AWMC.
3.10	Review training of all operational staff, particularly in the context of customer service.	Service delivery	Short	Staff able to motivate and encourage site users to segregate materials in a non-confrontational manner.
3.11	Develop systems for accurate measuring of quantities of litter	Service delivery	Short	Enable development of baseline quantities to measure litter reduction
3.12	Develop systems for accurate measuring of quantities of dumped rubbish	Service delivery	Short	Enable development of baseline quantities to measure reduction in instances of illegal dumping

7.5 Strategic Theme 4: Waste Reduction, Education and Community Engagement

Albury City's role in optimising performance, in addition to providing infrastructure and services appropriate to the needs of the community and in line with relevant legislation, includes providing information and educational resources to the public so that it can make the informed environmentally appropriate choices.

Proposed actions for further progress in waste reduction, education and community engagement are summarised Table 17 below.

Table 17 Strategic Theme 4 – Waste Reduction, Education and Community Engagement

Action Ref	Action	Sector	Priority	Outcome
4.1	Review staffing levels on site – particularly in the context of a 'meet and greet' type service for the ARC. Offer and assist elderly and disabled site users.	Education and engagement	Immediate	Improved recycling levels but also assistance in directing users and unloading vehicles to help maintain traffic flows through the site.
4.2	Review training of Albury City's Customer Service Centre staff located in Kiewa Street, to include a mandatory AWMC site tour.	Education and engagement	Immediate	Staff fully informed on AWMC operations, what wastes are accepted, and how best to advise customers on pre-sorting loads prior to arrival using Albury City's three-step guide.
4.3	Develop a customer service manual for all AWMC based-staff to be delivered as part of initial site induction and ongoing training.	Education and engagement	Short	Clear and consistent understanding and application of customer service standards.
4.4	Revisit and refresh content and distribution of the site User Guide. Link publication with price revisions and review at least annually.	Education and engagement	Short	Maximum market penetration and clarity on pre-sorting to enhance recycling.
4.5	Revise and publicise AWMC pricing structures.	Education and engagement	Short	Prior to arrival at site, users are sufficiently incentivised to pre-sort rather than simply dispose of 'general' waste.
4.6	Monitor levels of loose litter in Albury City through litter audits at least every two years.	Service delivery	Short	Albury City able to monitor the impact of future litter measures put in place, such as extra bins or litter officers, and assign resources accordingly.
4.7	Develop a formal Communication Plan for the AWMC.	Education and engagement	Short	Increased staff interactions with customers at the AWMC, particularly at the point of depositing materials to ease traffic flows, maximise recycling and enhance user experience.
4.8	Develop a formal plan to deliver focused engagement with local businesses.	Education and engagement	Short	Enhanced recycling and diversion performance for commercial waste materials received at the AWMC.
4.9	Develop a formal community engagement strategy, and/or local action committee.	Education and engagement	Short	Ongoing communication with local communities maintained.

Action Ref	Action	Sector	Priority	Outcome
4.10	Undertake a composition analysis of mixed residual waste streams received at the AWMC.	Service delivery	Medium	Determination of the true quantity of problem waste currently being disposed to landfill, enabling Albury City to focus resources and educate the public on the most commonly mismanaged problem waste.
4.11	Identify members of the site staff at the AWMC and adjacent communities to be trained as odour calibrated personnel.	Service delivery	Short	Trained resource in place to assess odour. Staff and residents more engaged in site function and impacts.
4.12	Develop a formal plan for the AWMC to become a sustainability park with community involvement and a city active component.	Service delivery	Long	Long term vision for the site reflecting wider Albury City aspirations.
4.13	Assess the benefit of requiring production of a formal waste management plan to support development applications to assist with better waste management.	Service delivery	Short	Informed position on the merits of introducing new requirements.
4.14	Develop an accurate and consistent whole waste system database for improved data management – building upon the additional data, accuracy and understanding identified in the earlier data related actions	Service delivery	Medium	Improved data management and reliability to inform future directions and decisions.
4.15	Extend Halve Waste to any additional contract councils and schools and communities in them	Education and engagement	Short	Halve Waste program operating in contract councils. Additional resources engaged if required.
4.16	Peg levy rate to CPI and review to ensure Halve Waste costs are covered	Education and engagement	Immediate	Costs of Halve Waste program always covered by levy revenue
4.17	Undertake an independent review of staffing and resourcing at the AWMC.	Service delivery	Short	To determine appropriate staff numbers to provide safe and efficient operations

7.6 Delivering the Strategy's Action Plan

Albury City has made significant progress over the last decade in providing a range new services, new infrastructure and educational programs, which, with the support of local residents and businesses, has resulted in a transformation of how solid waste is managed, both in Albury City and the wider region.

The development and composition of this Waste Strategy has been designed to provide Albury City with a framework under which it can continue to deliver high levels of performance in its kerbside collection services, and continue to provide key regional infrastructure to:

- Further enhancing the design and operation of the AWMC and
- Prepare for additional arrangements which will be needed to support the next steps in reducing waste, increasing recycling and minimising reliance on landfill at regional, state and national level.

The proposed timeline for the implementation of these actions, along with indicative costs in each case, is summarised in Table 18 below. Cost items shown in grey italics may ultimately be delivered by internal Albury City resources. Other actions are likely to require support or input from specialist advisors. The costs presented below should therefore be viewed as a guide only, and all will be subject to review and scrutiny as this Strategy's implementation progresses.

Table 18 Implementation Timetable

Action Ref.	Action	Sector	Indicative cost	6 months	18 months	3 years	5 years
Strategic Theme 1: New Infrastructure Identification and Development							
1.1	Engage with regional partner councils	Infrastructure improvements	\$15,000				
1.2	Assessment of organic waste management options	Infrastructure improvements	\$35,000				
1.3	Instigate procurement of IVC	Service delivery	\$300,000 ¹¹				
1.4	Implementation of IVC	Service delivery	- ¹²				
1.5	Assessment of residual waste management options	Service delivery	\$50,000				
1.6	Instigate procurement of MBT	Service delivery	\$500,000 ¹³				
1.7	Implementation of MBT	Service delivery	- ¹⁴				
1.8	Develop waste disposal contingency plan	Service delivery	\$20,000				
1.9	Commission operation of C&D MRF under construction	Infrastructure improvements	N/a				
1.10	Review need for RDF facility	Infrastructure improvements	\$10,000				
Strategic Theme 2: Existing Infrastructure Optimisation							
2.1	Develop comprehensive landfill cell fill plans	Infrastructure improvements	\$20,000				
2.2	Cost benefit assessment of alternative landfill cell barrier systems	Infrastructure improvements	\$15,000				
2.3	Assess mobile plant used at the AWMC	Infrastructure improvements	\$7,500				
2.4	Review push pit design and use of mobile plant	Infrastructure improvements	\$7,500				
2.5	Assess scope for sorting facility at the push pit	Infrastructure improvements	\$15,000				
2.6	Review entire AWMC site configuration and produce master plan	Infrastructure improvements Service delivery	\$35,000				

¹¹ Procurement costs will depend on the outcome of Actions 1.1-1.2 and chosen delivery mechanism, that is, new facility or procurement of capacity at existing plant)

¹² Extent of costs will be determined by completion of Actions 1.1-1.3 including determination of the preferred solution and delivery mechanism

¹³ Procurement costs will depend on the outcome of Actions 1.1 and 1.5 and chosen delivery mechanism, that is, new facility or procurement of capacity at existing plant)

¹⁴ Extent of costs will be determined by completion of Actions 1.1, 1.5 and 1.6 including determination of the preferred solution and delivery mechanism

Action Ref.	Action	Sector	Indicative cost	6 months	18 months	3 years	5 years
2.7	Compositional analysis of C&D waste stream	Service delivery	\$15,000 ¹⁵				
2.8	Review traffic flows on site	Service delivery	\$5,000				
2.9	Assess need for future landfill resource	Infrastructure improvements	\$10,000				
2.10	Continue good practice capping of landfill cells	Infrastructure improvements	- ¹⁶				
2.11	Develop Landfill Closure Plan	Infrastructure improvements	\$25,000				
2.12	Calculate costs of relative landfill airspace	Infrastructure improvements	\$5,000				
2.13	Review, develop and document LFG monitoring plan	Infrastructure improvements	\$5,000				
2.14	Procure or provide training for LTP management and monitoring	Infrastructure improvements	- ¹⁷				
2.15	Sustainability in design is taken into account	Infrastructure improvements	- ¹⁸				
Strategic Theme 3: Provision, Configuration and Delivery of Services							
3.1	Assess opportunities to expand range of kerbside collected materials	Service delivery	\$15,000				
3.2	Assess current collection services and agree future service needs	Service delivery	\$25,000				
3.3	Assess staffing levels across the AWMC	Service delivery	\$5,000				
3.4	Develop staff engagement plan	Service delivery	\$15,000				
3.5	Review landfill mobile plant, procedures and staff training	Service delivery	\$10,000				
3.6	Review staff shift patterns	Service delivery	\$5,000				
3.7	Review material off-take agreements	Service delivery	\$10,000				
3.8	Benchmark current charging rates	Service delivery	\$5,000				
3.9	Review Gate Fee Study	Service delivery	\$10,000				
3.10	Review all operational staff training, including customer service	Service delivery	\$5,000				

¹⁵ Assumed to be done in conjunction with Action 4.9

¹⁶ Landfill rehabilitation works already addressed in Albury City's current 10-year Capital Works Program

¹⁷ Extent of costs dependent on selection of internal resource or outsourcing and scope of any outsourced contract

¹⁸ Extent of costs dependent on selection of internal resource or outsourcing and scope of any outsourced contract

Action Ref.	Action	Sector	Indicative cost	6 months	18 months	3 years	5 years
3.11	Systems for measuring quantities of litter	Service delivery	\$5,000				
3.12	Systems for measuring quantities of dumped rubbish	Service delivery	\$5,000				
Strategic Theme 4: Waste Reduction, Education and Community Engagement							
4.1	Review potential for extra 'meet and greet' / assistance	Education and engagement	\$2,500				
4.2	Review Customer Service Centre staff training	Education and engagement	\$5,000				
4.3	Develop customer service manual for AWMC staff	Education and engagement	\$15,000				
4.4	Update and distribute AWMC Site User Guide	Education and engagement	\$10,000				
4.5	Update and distribute AWMC pricing structures	Education and engagement	\$10,000				
4.6	Carry out litter audit every two years	Service delivery	\$10,000				
4.7	Develop AWMC Communication Plan	Education and engagement	\$10,000				
4.8	Develop engagement plan for local businesses	Education and engagement	\$5,000				
4.9	Develop community engagement strategy and/or form local action committee	Education and engagement	\$5,000				
4.10	Composition analysis of mixed residual waste streams received at AWMC	Service delivery	\$35,000 ¹⁹				
4.11	Identify and train odour calibrated personnel	Service delivery	\$10,000				
4.12	Develop AWMC sustainability park plan	Service delivery	\$25,000				
4.13	Assess benefit of requiring WMPs in development applications	Service delivery	\$10,000				
4.14	Develop an accurate and consistent whole waste system database	Service delivery	\$35,000				
4.15	Extend Halve Waste to contract councils	Education and engagement	\$70,000				
4.16	Peg levy rate to CPI and review to ensure Halve Waste costs are covered	Education and engagement	N/a				

¹⁹ Assumed to be done in conjunction with Action 2.9

ASIA PACIFIC OFFICES

BRISBANE

Level 2, 15 Astor Terrace
Spring Hill QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CANBERRA

GPO 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN

Unit 5, 21 Parap Road
Parap NT 0820
Australia
T: +61 8 8998 0100
F: +61 8 9370 0101

GOLD COAST

Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY

21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE

Level 11, 176 Wellington Parade
East Melbourne VIC 3002
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE

10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

PERTH

Ground Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY

Tenancy 202 Submarine School
Sub Base Platypus
120 High Street
North Sydney NSW 2060
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE

12 Cannan Street
South Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

WOLLONGONG

Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 2 4249 1000

AUCKLAND

68 Beach Road
Auckland 1010
New Zealand
T: 0800 757 695

NELSON

6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628